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PHOTOGRAPHIC INTELLIGENCE REPORT

SEARCH FOR  
URANIUM MINING AREAS  
IN EASTERN CHINA

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CIA/PIR 63016

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IN EASTERN CHINA

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SEARCH FOR URANIUM MINING AREAS  
IN EASTERN CHINA

The referenced requirements collectively call for searches of 58 areas in eastern China to determine whether mining is being carried out there and, if so, whether such mining is for uranium. Figure I and Table I locate and list all the areas analyzed. In all cases searches were conducted within a radial area of 25 nautical miles (nm) from the search-center coordinates. This report is issued in conjunction with a similar report, CIA/PIR-63017, October 1965, covering mining areas in central China.

Because of the large number of mines covered and the time requirements imposed, scanning was generally confined to [ ] coverage, and only in a very few of the areas - those considered most likely to have uranium mining activity - was the larger-scale [ ] photography utilized. Also, time limitations severely restricted the use of collateral materials which are an important adjunct to the successful determination of a particular type of mining.

For ease of reference, a number has been arbitrarily assigned to each search area, and the areas are presented in numerical order, corresponding to the list which accompanies Figure 1. The report consists of a description of each mining and prospecting area of any significance that was observed within each search area, and in most cases a photo enlargement of the mine or other activity accompanies the write-up. For those areas in which no activity was observed, a negative statement is given. Some of the search areas overlapped others, so that it was necessary to cross-reference the mining areas located in the overlapping portions. The descriptions give the pertinent factors of each mine; e.g., its size, whether it is an underground or a surface mine, whether it appears new or old, presence or absence of support areas, rail and road facilities, and whether active or abandoned. Security fencing is of little or no consideration in the layout of mining areas of eastern China, for in only one of the mining areas (Area 6) was security fencing evident.

As a result of this search/study it is felt that uranium mining per se cannot be determined by photography alone. Uranium mining possesses no intrinsic characteristics that would set it apart from many other types of mining. There are some helpful indicators, such as the degree of activity, newness, possible security checks, and transportation features, but corroborative evidence, aside from all these, is necessary before any reasonable degree of certainty can be assured in the identification of a uranium mine. Geologic knowledge of the mining area, its proximity to an ore mill suitable for uranium ore processing, and collateral reports are essential aids for verifying a uranium mine.

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It is anticipated that this report will be studied in conjunction with collateral information and other background materials for levying more detailed follow-up requirements on those areas which appear to offer the best prospects for uranium mining and milling.

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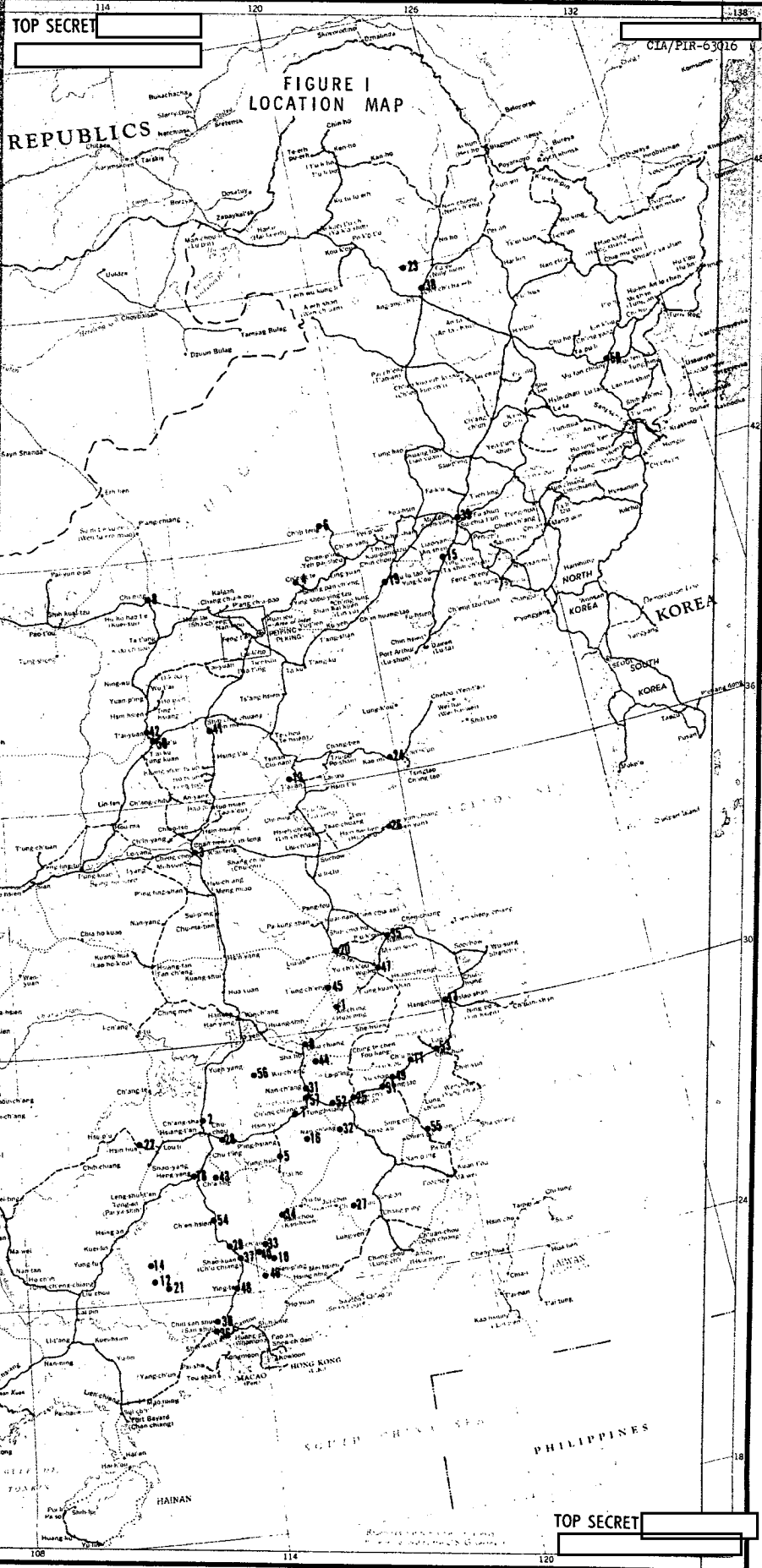
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TABLE I

<u>AREA</u>	<u>COORDINATES</u>	<u>AREA</u>	<u>COORDINATES</u>
1. Anching	30-31N 117-02E	30. Lupao	23-21N 112-53E
2. Changsha	28-12N 112-59E	31. Nanchang	28-38N 115-56E
3. Chengchou	34-46N 113-39E	32. Nancheng	27-33N 116-35E
4. Chengte	40-58N 117-53E	33. Nanhsiung	25-07N 114-18E
5. Chian	27-08N 116-00E	34. Nankang	25-41N 114-52E
6. Chihfeng	42-17N 119-02E	35. Nanking	32-03N 118-46E
7. Chingchiang	28-02N 115-23E	36. Sanshiu	23-10N 112-49E
8. Chining	41-02N 113-05E	37. Shaokuan	24-48N 113-35E
9. Chiuchuan	29-44N 115-59E	38. Ch'ich'ihaerh	47-22N 123-57E
10. Chuannan	24-45N 114-32E	39. Shenyang	41-48N 123-27E
11. Chuhsian	28-56N 118-50E	40. Shihhsing	24-57N 114-04E
12. Chungshan	24-32N 111-18E	41. Tachen	37-41N 114-34E
13. Feicheng	36-15N 116-45E	42. Taiyuan	37-52N 112-34E
14. Fuchan	24-50N 111-16E	43. Tsaoshih	26-53N 113-08E
15. Haicheng	40-52N 122-45E	44. Tuchang	29-15N 116-13E
16. Loan	27-24N 115-49E	45. Tungcheng	31-03N 116-58E
17. Hangchou	30-15N 120-01E	46. Wengyuan	24-21N 114-07E
18. Hengyang	26-54N 112-36E	47. Wuhu	31-21N 118-22E
19. Hsingcheng	40-37N 120-43E	48. Yingte	24-10N 113-24E
20. Hofei	31-51N 117-17E	49. Yushan	28-40N 118-15E
21. Hohsien	24-20N 111-39E	50. Yutzu	37-40N 112-45E
22. Hsinhua	27-45N 111-18E	51. Shangjao	28-26N 117-58E
23. Kannan	47-55N 123-31E	52. Kungshsichen	28-14N 116-35E
24. Kaomi	36-22N 119-45E	53. Chinhua	29-07N 119-39E
25. Kueichi	28-17N 117-11E	54. Chenhsien	25-48N 113-02E
26. Lienyunchiang	34-44N 119-21E	55. Hsiachuang	27-22N 119-00E
27. Liencheng	25-47N 116-48E	56. Hsiushui	29-02N 114-34E
28. Liling	27-41N 113-30E	57. Lientang	28-33N 115-56E
29. Lochang	25-08N 113-20E	58. Mutanchiang	44-35N 129-36E

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AREA 1

Anching (Huai-Ning), Anhwei 30-31N 117-02E WAC 493

12 nm ESE of Anching at 30-27N 117-17E (Figure 2). Mining area consists chiefly of an underground mine at the base of a small rounded mountain foothill and several surface excavations on the sides of the hill. A probable ore processing plant is located approximately 0.25 nm NE, and a large housing/support area is 0.5 nm north. A dam-contained reservoir is situated 0.5 nm east of the plant. Road-served.

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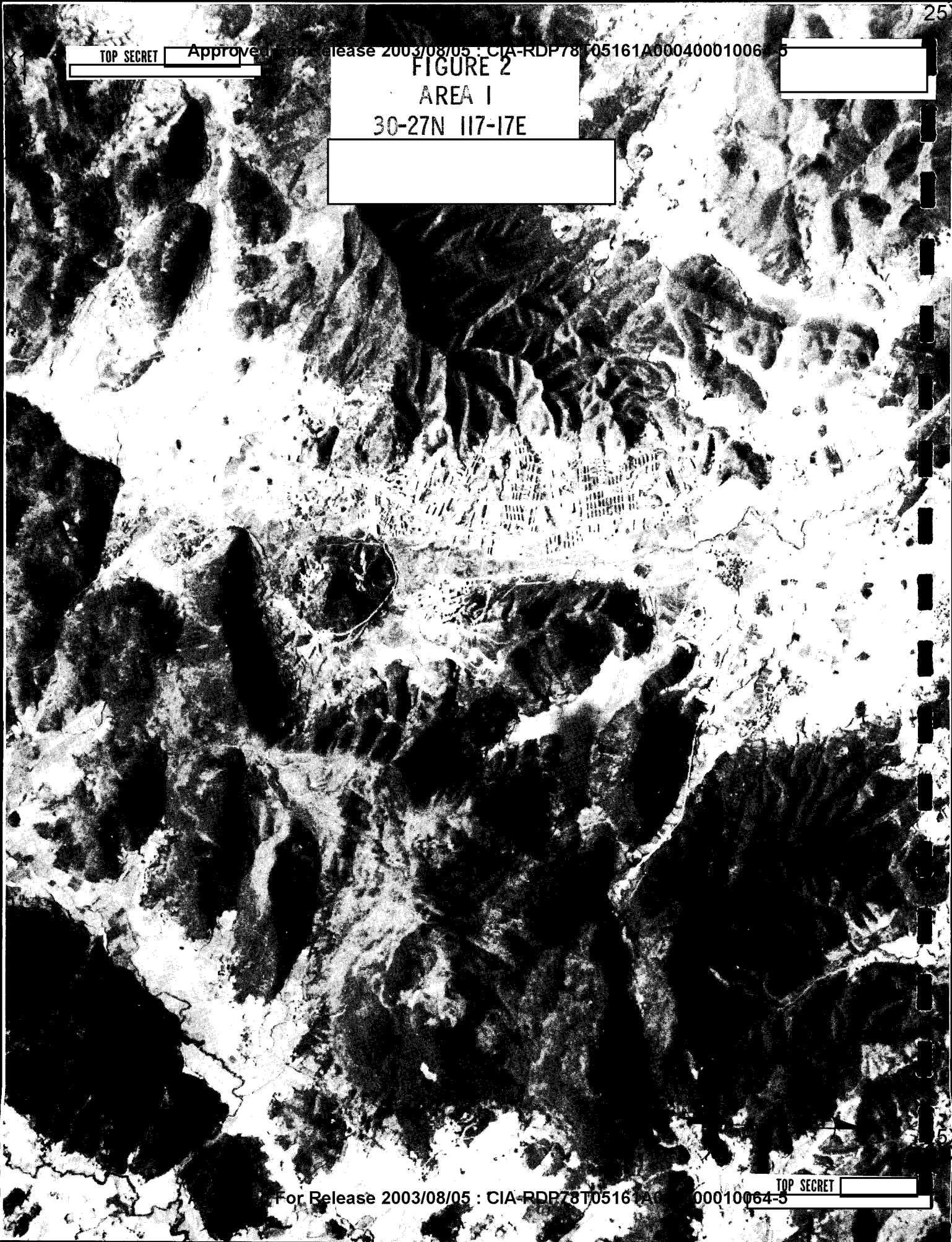
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FIGURE 2

AREA I

30-27N 117-17E



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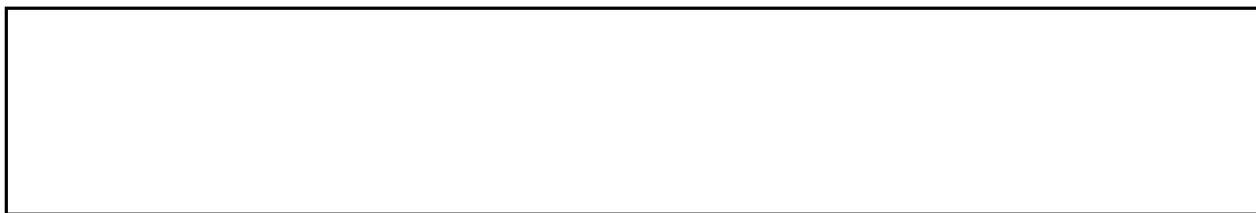
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AREA 2

Changsha, Hunan 28-12N 112-59E WAC 498

4 nm south of Changsha at 28-07N 112-55E. Surface scarring and digging in low-lying hills indicate light mining activity. A single open pit with a scattered support area is located near river 0.75 nm south. Another similar open pit, connected by rail spur to river, with minor support area is approximately 2 nm south.

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AREA 3

Chengchou (Chenghsien), Konan 34-46N 113-39E WAC 385

25 nm west of Chengchou at 34-42N 113-09E (Figure 3). Open-pit mining area consists of one large, deep open pit with considerable waste material and a large but shallower excavation 0.5 nm west. A large housing/support area and other support buildings are immediately north. Served by rail spur with ore-loading facilities alongside.

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FIGURE 3

AREA 3

34-43N 113-09E

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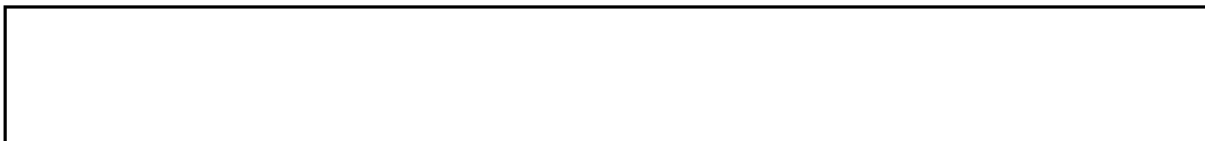
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## AREA 4

Chengte, Hupeh 40-58N 117-53E WAC 289

28 nm SW of Chengte at 40-32N 117-43E (Figure 4). Deep, elongated open-pit mine in narrow stream valley with much waste material adjacent. Served by rail spur with considerable support housing nearby. An ore processing plant is located approximately 0.5 nm NW. Other smaller mines, both surface and underground, are located along the rail-served valley over a distance of several miles. Support housing is located throughout the valley.

6.5 nm west of Chengte at 40-57N 117-47E. Possible underground shaft mines are located adjacent to a rail line. Dark tones in immediate area suggest possible waste/ore material; however, positive identification cannot be made from small-scale photography. Industrial areas and support housing nearby.

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FIGURE 4  
AREA 4  
40-32N 117-43E

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AREA 5

Chian, Kiangsi 27-08N 115-00E WAC 498

No significant mining activity was observed within a search area 25 nm in radius.

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AREA 6

Chihfeng, Inner Mongolia 42-17N 119-02E WAC 289

15 nm east of Chihfeng at 42-19N 119-22E (Figure 5). Rail-served, secured underground mine contains one and possibly two headframes, a long triangular waste pile, and several support buildings. A rail-loading facility serves the site. A very large support/housing area is located approximately 1 nm south. Active. Another rail-served secured underground mine, with several support buildings and a rail-loading facility, is located 0.7 nm east of the first.

18 nm SE of Chihfeng at 42-02N 119-16E (Figure 6). A large rail-served open-pit strip mine apparently for coal. Extensive waste material has been removed by rail cars from either end of the mine and distributed along valley. Area also contains a large stockpile (probably coal), rail-loading facilities, and an important housing area. Very active.

Two probable underground mines, rail served, are located approximately 3.5 nm west of the strip mine. A rail spur connects this area directly to the strip-mining area.

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FIGURE 5  
AREA 6  
42-19N 119-22E

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FIGURE 6  
AREA 6  
42-02N 119-16E

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AREA 7

Chingchiang, Kiangsi 28-02N 115-23E WAC 493

Exploratory scarring and trenching were observed in several parts of the search area, chiefly in the northern portion. A probable underground mining area, 24 nm NE of Chingchiang, centered on coordinates 28-17N 115-43E, is described under Area 57 (Lientang), a portion of which overlaps Area 7.

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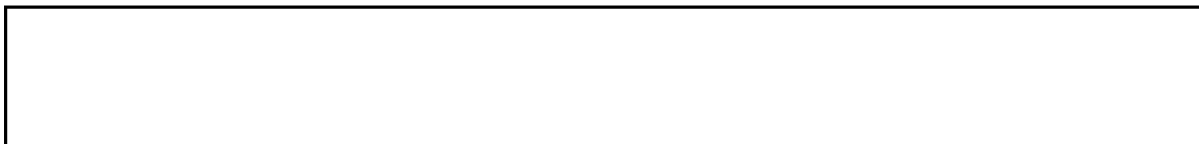
AREA 8

Chining, Inner Mongolia 41-02N 113-05E WAC 288

17 nm SSE of Chining at 40-47N 113-16E. Very small area of surface mining on low hill. The patterns of some of the tailings suggest that an underground mine may also be present. Support/housing is adjacent on south side.

2.5 nm south of Chining at 40-59N 113-05E. Several small scattered areas of surface mining are located in hilly terrain. Housing in nearby village may or may not support mines. Only trail-served. Appears insignificant.

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FIGURE 7  
AREA 9  
29-33N 115-59E

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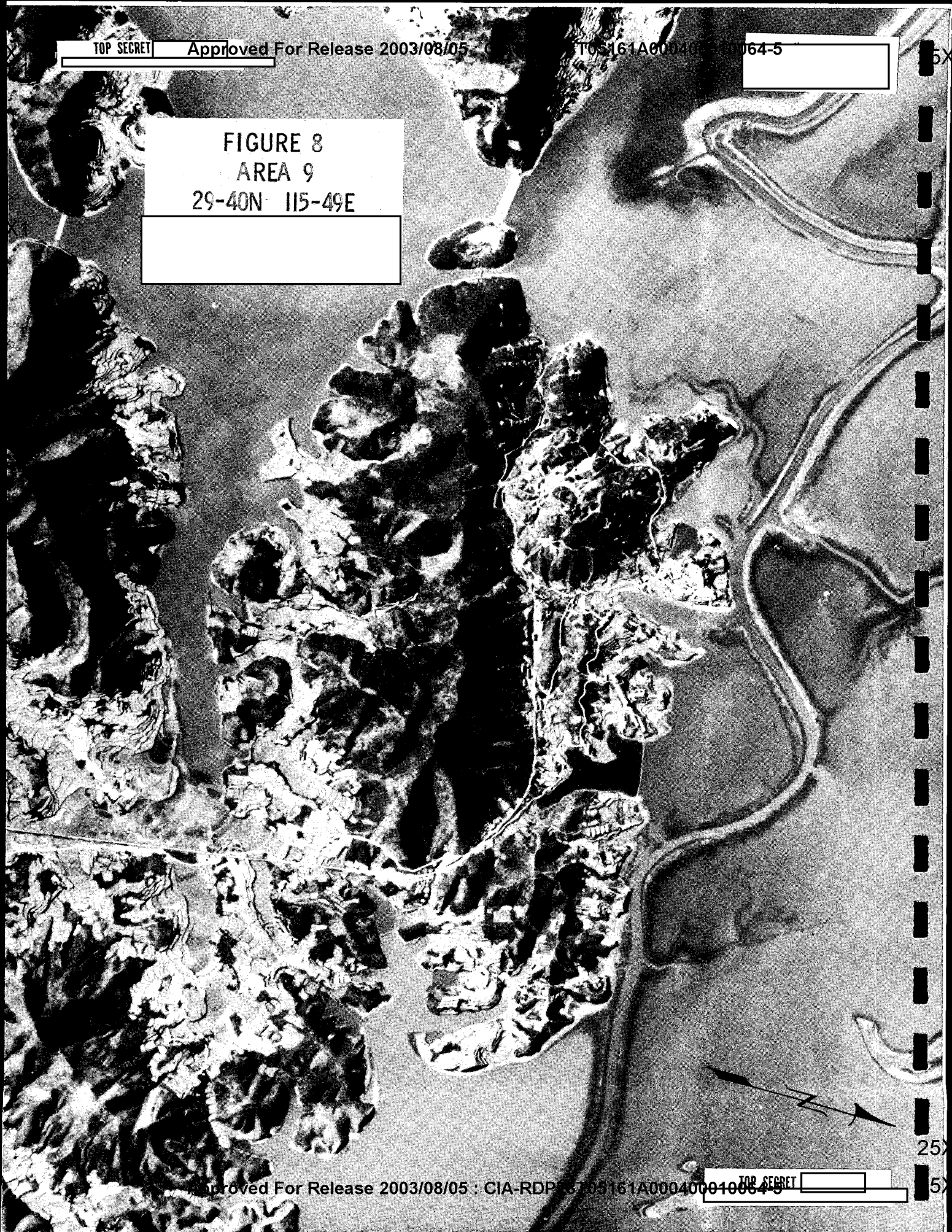


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FIGURE 8  
AREA 9  
29-40N 115-49E



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AREA 10

Chuannan (Chien-Nan), Kiangsi 24-45N 114-32E WAC 498

19 nm east of Chuannan at 24-43N 114-54E (Figures 9 and 10). Large active underground mining area, situated in mountains, appears quite old. Considerable support housing located at mine site is arranged in a dense contour-like fashion. Large waste dumps attest to mine's size. Prospect trenching is present in area. A winding mountain road connects the mining area to a large ore processing plant at San-Heng-Hsu, 2 nm south.

Portions of Area 10 fall within search Areas 33, 40 and 46, q.v.

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FIGURE 9  
AREA 10  
24-43N 114-54E

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FIGURE 10  
AREA 10  
24-43N 114-54E

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AREA 11

Chuhsian (Chuhsien), Chekiang 28-56N 118-50E WAC 493

12 nm NNE of Chuhsian at 29-09N 118-55E (Figure 11). Small mining area, consisting of several probable underground mines and much prospected surrounding terrain, is located in edge of mountains. A probable overhead conveyer runs from the mining area down the mountain side to valley below. No support area, other than nearby village, is apparent. Served by tertiary mountain road.

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FIGURE II  
AREA II  
29-09N 112-55E



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## AREA 12

Chungshan, Kwangtung 24-32N 111-18E WAC 497

7 nm NE of Chungshan at 24-35N 111-24E (Figure 12). Mining area consists of numerous surface excavations in limestone karst terrain, covering approximately 1.5 square nm. The area has probably been worked for many years, and some of the excavations are water-filled. A large housing support area is immediately south of the mining area.

11 nm south of Chungshan at 24-20N 111-21E (Figure 13). Large active surface mining area, in probable limestone karst, covers approximately 0.5 square nm. Several of the excavations are partially waterfilled. Probable processing facilities and two waste disposal basins are present. A large housing area is immediately SW of the mines.

Three mines are located as follows:

11 nm NE of Chungshan at 24-38N 111-28E  
14 nm ESE of Chungshan at 24-29N 111-33E  
16 nm ESE of Chungshan at 24-28N 111-36E

These three mines are very similar in appearance. They are also like the others in this search area in that they are surface mines in probable limestone formation. Each has a large housing support area present at the mining site.

Portions of this area fall within search Areas 14 and 21, q.v.

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FIGURE 12  
AREA 12  
24-35N III-24E

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FIGURE I3  
AREA I2  
24-20N III-2IE

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AREA 13

Feicheng, Shantung 36-15N 116-45E WAC 381

There was no mining activity of significance observed within this search area. [ ] photographic coverage of Area 13 was very limited and of poor quality.

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AREA 14

Fuchuan, Kweichow 24-50N 111-16E WAC 497

All the mining activity observed within this search area falls within a portion of Area 12 which overlaps this area and is reported under Area 12, q.v.

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## AREA 15

Haicheng, Liaoning 40-52N 122-45E WAC 289

18 nm NE of Haicheng at 41-03N 123-04E (Figure 14)  
15 nm NE of Haicheng at 41-03N 122-58E (Figure 15)  
22 nm NE of Haicheng at 41-03N 123-10E (Figure 16)

These three large strip mines are rail-served and are in an area of intense strip-mining activity, with several other smaller open-pit and strip mines in the area. The first two mines have processing mills associated with them, and all three are very active and appear to be iron-ore type operations. Considerable housing is located throughout the area.

15 nm SW of Haicheng at 40-38N 122-34E (Figure 17)  
13 nm SSW of Haicheng at 40-40N 122-39E  
8 nm South of Haicheng at 40-43N 122-44E (Figure 18)  
8 nm ESE of Haicheng at 40-43N 122-48E  
9 nm ESE of Haicheng at 40-44N 122-51E  
9 nm SE of Haicheng at 40-45N 122-54E

These mines occur in an area of very active open-pit and strip mining operations located over an 18 nm linear area trending NE-SW. All of the mines are very similar in type and size, except for the first, which is somewhat larger than the others. The mines have support housing nearby and each is served by rail. A processing mill is located 1 nm SW of the largest mine. There are a few other mine sites within and just outside the search area, but they appear minor in relation to the above areas.

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FIGURE 14  
AREA 15  
41-03N 123-04E

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FIGURE I5  
AREA I5  
41-03N 122-58E

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FIGURE 16  
AREA 15  
41-03N 123-10E

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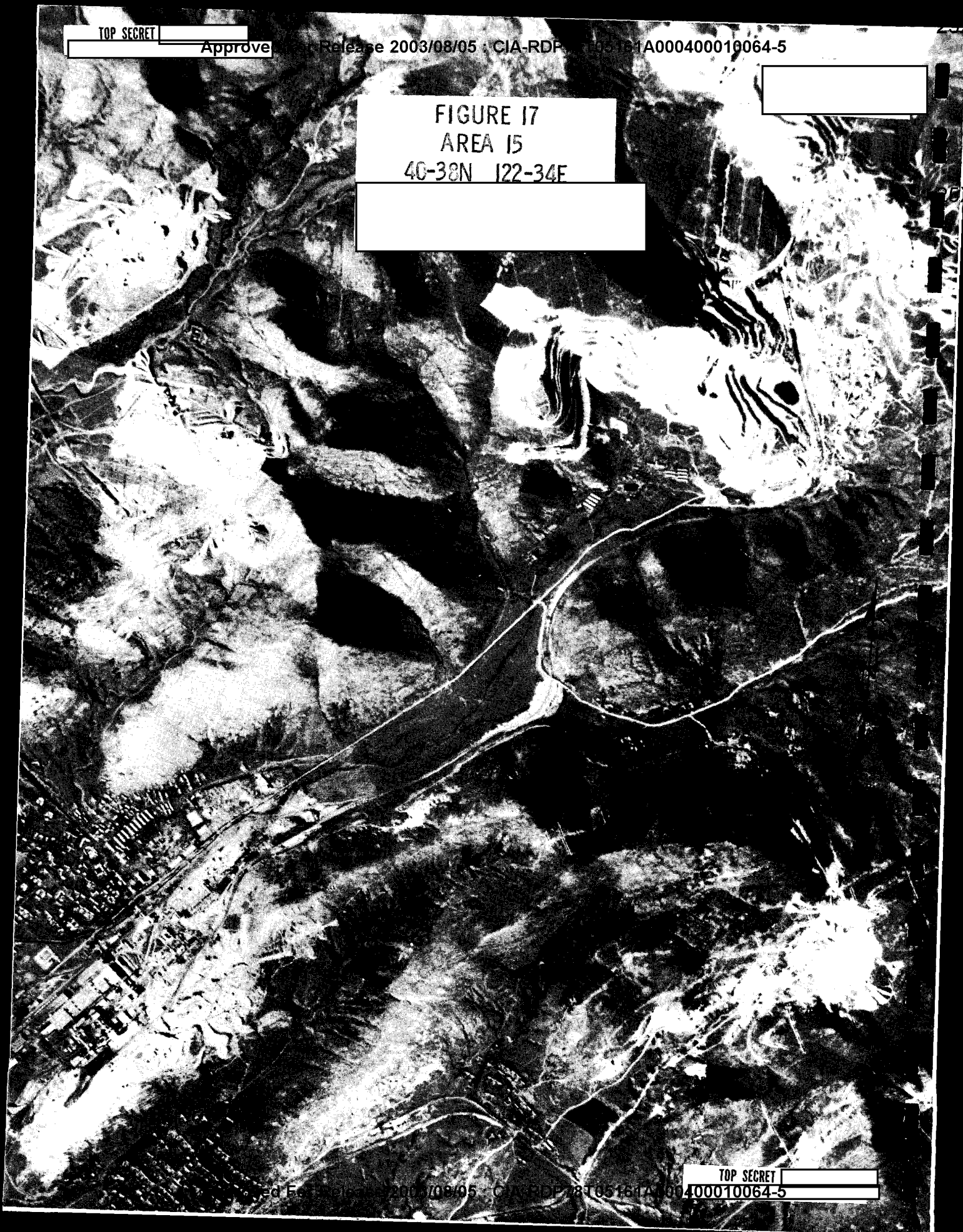


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FIGURE 17  
AREA 15  
40-38N 122-34E



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FIGURE 18  
AREA 15  
40-43N 122-44E

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## AREA 16

Loan, Kiangsi 27-24N 115-49E WAC 498

15 nm east of Loan at 27-23N 116-03E (Figure 19). Two mining areas, 0.5 nm apart, consist of probable underground and shallow surface excavations on sides and at bases of igneous peaks. Each area contains several support buildings. Served by well used tortuous mountain road that terminates at mining area.

8 nm north of Loan at 27-32N 115-51E (Figure 20). Mining area consists of open pit and surface excavations in low-lying hills. Numerous small exploratory excavations and scars are located in the general area of the mine. Support housing is located at nearby village, with possible primary ore-handling facility on road between village and mine. Active.

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FIGURE 19  
AREA 16  
27-23N 116-03E

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FIGURE 20  
AREA 16  
27-32N 115-51E

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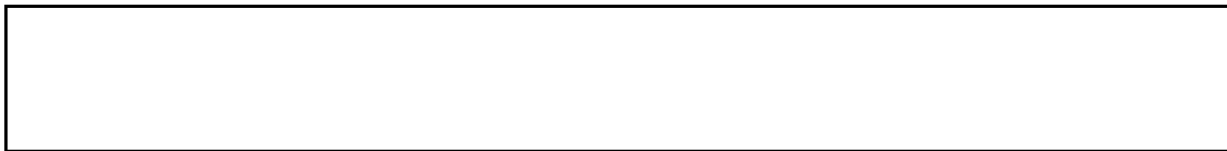
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AREA 17

Hangchou, Chekiang 30-15N 120-01E WAC 492

10 nm NNE of Hangchou at 30-24N 120-15E (Figure 21). Mining area consists chiefly of two quarry-type excavations on lower slope of coastal monadnock with probable crushing mill present. Possible building material source. A similar mining area with numerous support buildings is located approximately 2 nm east on south slope of a smaller monadnock. Both areas are active.

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FIGURE 21  
AREA 17  
30-24N 120-15E

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## AREA 18

Hengyang, Hunan 26-54N 112-36E WAC 497

20 nm north of Hengyang at 27-14N 112-35E (Figure 22). Mining activity is confined to one hill, peak of which has been mined away by open excavation. Trails lead from mining area to valley below.

16 nm west of Hengyang at 26-51N 112-19E (Figure 23). Mining area consists of several small probably surface mines on an isolated elongated hill, with a larger surface mine at the west end of the hill. A possible overhead conveyer serves a portion of the mining area. Poor road connects mine site to rail line 0.5 nm south. No support housing evident.

11 nm NE of Hengyang at 26-58N 112-47E (Figure 24). Underground mining area consists of several shaft mines extending over an area of approximately 1 square nm and a prominent support area containing numerous housing and other support buildings. Area is served by rail spur with two terminal branches. Ore cars and ore-loading facilities are located on one of the branch spurs. Entire area appears relatively new. Active.

13 nm NE of Hengyang at 27-01N 112-52E (Figure 25). Open-pit mining area in stream bed is partially flooded. A diversionary canal has been built to re-route stream around mine. Support area containing approximately 35 housing buildings and several other support buildings is located immediately SW. This mine is road-connected to the underground mine site 2 nm SW (26-58N 112-47E) and appears to be located geologically up dip from that site.

20 nm south of Hengyang at 26-33N 112-35E (Figure 26). Typical Chinese mining complex covers approximately 0.5 square nm. Appears to be chiefly underground shaft mining with some old surface workings. Consists of numerous randomly arranged housing buildings, including an ore processing mill. A tailings pond and a secured explosives storage area are located immediately north. Served by rail spur. Appears quite old but still active.

The eastern portion of this search area falls within Area 43, q.v.

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FIGURE 22  
AREA 13  
27-14N 112-35E

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FIGURE 23  
AREA 18  
26-51N 112-19E

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FIGURE 24  
AREA 18  
26-58N 112-47E

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FIGURE 25  
AREA 13  
27-01N 112-52E

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FIGURE 26  
AREA 12  
26-33N 112-35E

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## AREA 19

Hsingcheng, Liaoning 40-37N 120-43E WAC 289

15 nm NW of Hsingcheng at 40-48N 120-27E (Figure 27). Large open-pit strip mine covers approximately 100 acres with numerous waste piles. Numerous support buildings, including probable crushing plant, are present. Housing area nearby. An explosives storage area is located about 1 nm east. Active.

16 nm NW of Hsingcheng at 40-49N 120-30E (Figure 28). Large active mining and milling area, located in rather broad mountain valley, extends over approximately 2 linear miles. Mining consists chiefly of open pits with one probable underground shaft mine. A large ore processing plant is located one mile south of the mining site. The tailings from this mill are piped to a dammed waste pond one mile away in an adjoining valley. Several hundred support houses are located throughout the area. Rail-served.

25 nm north of Hsingcheng at 41-02N 120-36E (Figure 29). Mining area consists of at least four underground probable shaft mines, as evidenced by tailings patterns. Support and housing buildings present. Located at terminus of railroad in low foothills. Other similar underground mines are located along railroad to the north outside search area.

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FIGURE 27  
AREA 19  
40-48N 120-27E

MINE

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FIGURE 28  
AREA 19  
40-49N 120-30E

MINES

LARGE MILL

WASTE POND

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25X

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## AREA 20

Hofei, Anhwei 31-51N 117-17E WAC 493

16 nm SE of Hofei at 31-43N 117-34E (Figure 30). Twenty-acre mine site consists of numerous pit-like excavations on side of low-lying eroded hill. Served by rail spur with four probable overhead loading conveyers connecting mine site to rail spur. A similar but smaller excavated area is located atop a small hill 1 nm east, with parallel prospect trenches crossing hill and trending north-south. A possible underground mine with several large support buildings and a small housing area are located 2 nm NE at the terminus of another rail spur.

30 nm SE of Hofei at 31-37N 117-50E (Figure 31). Active area of surface mining covers generally 1 square nm of hilly terrain. Large portions of hill have been mined away in places. Rail spurs serve the mining area. An ore-processing mill and a housing area are located on the east side of the district.

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FIGURE 30  
AREA 20  
31-43N 117-34E

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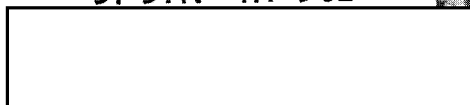
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FIGURE 31  
AREA 20  
31-37N 117-50E



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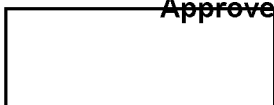


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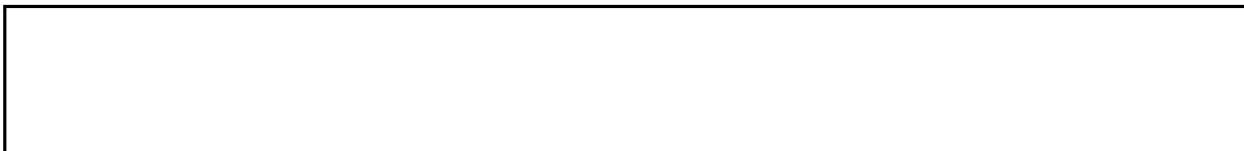
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AREA 21

Hohsien, Kwangsi 24-20N 111-39E WAC 497

All the significant mining activity observed within this search area falls within a portion of Area 12, q.v.

PHOTOGRAPHY

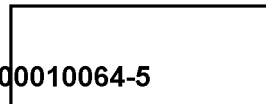


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AREA 22

Hsinhua, Hunan 27-45N 111-18E WAC 497

8 nm east of Hsinhua at 27-45N 111-28E (Figure 32). Mining area, in a well eroded valley, extends intermittently over a linear area of about 2 nm. Consists of open-pit excavations along floor of valley and probable shaft mining as evidenced by pattern of tailings. Considerable housing and probable primary processing facility present. Appears old but still active. Served by rail spur.

13 nm NW of Hsinhua at 27-52N 111-04E. Possible mining area consists of ground scarring and approximately nine support buildings scattered in random fashion. Relatively insignificant.

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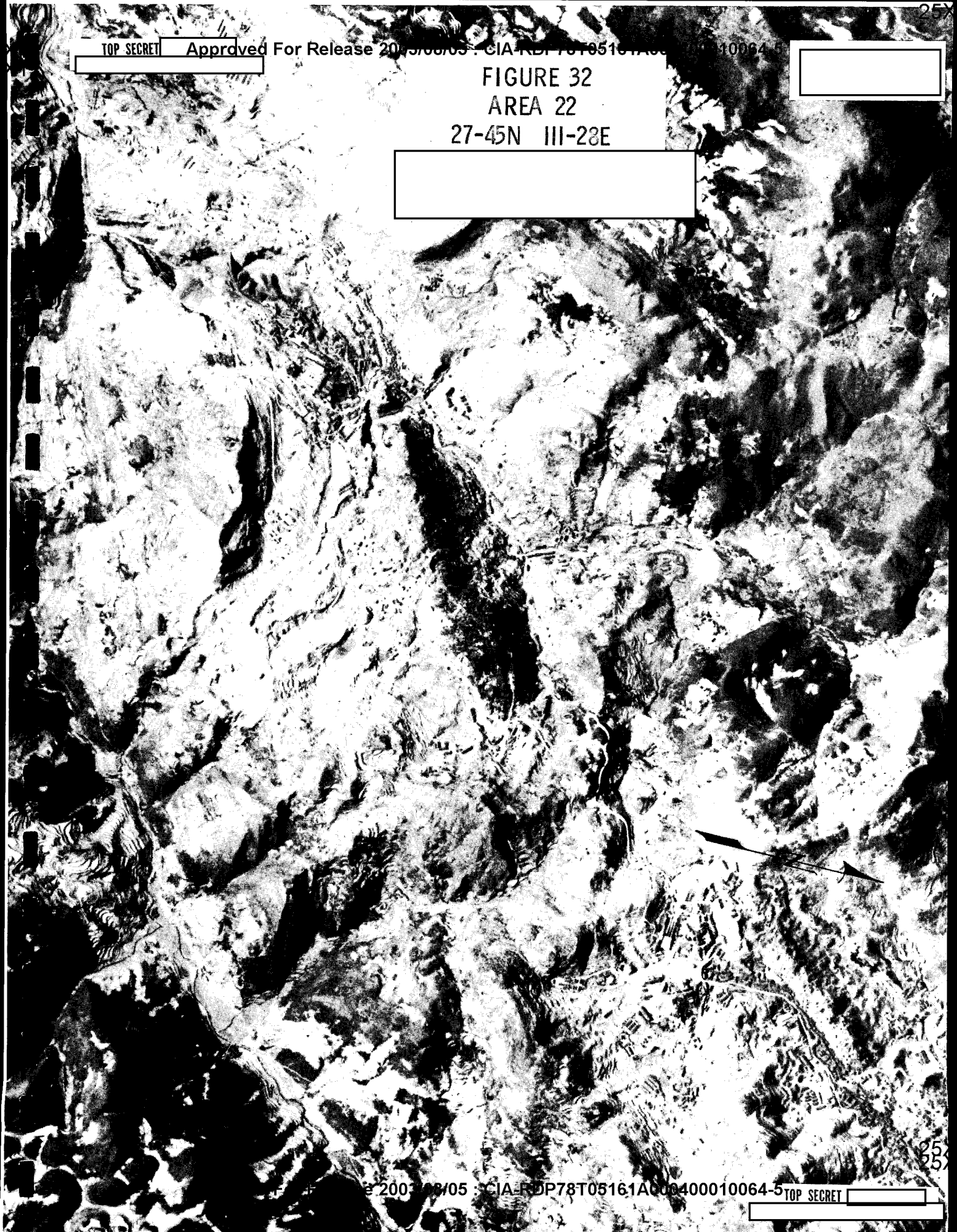
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FIGURE 32  
AREA 22  
27-45N III-28E



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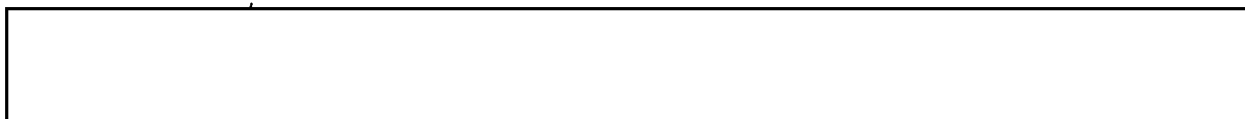
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AREA 23

Kannan, Heilungkiang 47-55N 123-31E WAC 283

No significant mining activity was observed within the 25 nm-radius search area.

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AREA 24

Kaomi, Shantung 36-22N 119-45E WAC 381

31 nm NW of Kaomi at 36-35N 119-09E (Figure 33). Large probable underground shaft mine at terminus of rail spur with rail-loading facility. Includes a large dark-colored waste/ore pile, possibly coal. Housing adjacent to mine. Another similar but smaller rail-served mine is located 1 nm north. Numerous small surface excavations, most of which appear old, are located SW of the large shaft mine and extend over an area from the mine to a point 2 nm away.

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FIGURE 33  
AREA 24  
36-35N 119-09E



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AREA 25

Kueichi, Kiangsi 28-17N 117-11E WAC 493

20 nm NE of Kueichi at 28-32N 117-26E (Figure 34). Mining area consists of surface and open-pit mines located generally around the bases of several contiguous hills, the sides of which have been partially mined away. Exploratory trenching is in immediate area. Support housing and a village are located 1 nm east of the mining area, and a possible primary processing facility is 0.5 nm east of the mines. An unfinished rail spur extends from I-Yang, 7 nm north, to the mine site. The mines appear active. 5X

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ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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FIGURE 34

AREA 25

28-32N 117-26E

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AREA 26

Lienyunchiang (Lienyun), Kiangsu 34-44N 119-21E WAC 386

17 nm SW of Lienyunchiang at 34-34N 119-07E (Figure 35). An elongated open excavation is located along the base of a large rocky hill outcrop. The slopes and top of the outcrop bear considerable exploration scarring and small mine sites. Support housing and other buildings are present, and an ore processing plant is located near the SE end of the mining area. A rail spur serves the area.

7 nm SW of Lienyunchiang at 34-39N 119-27E. Several small underground mines are located on top of a massive rock outcrop. No housing or other support buildings evident at mine sites. Served by tertiary mountain road from farm valley below.

2.5 nm SE of Lienyunchiang at 34-43N 119-25E. Several small adit-type mines, similar to those last described, are located on a massive rock outcrop. No support buildings at mine sites. Served by narrow winding road from valley below.

27 nm south of Lienyunchiang at 34-19N 119-14E. Surface excavations near base of small isolated rock outcrop cover approximately 40 acres. Village of Taishan adjoins mine site to the south. Area is surrounded by rice paddy cultivation for many miles. Salt pans are located along the coast on either side of Lienyunchiang for several miles.

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FIGURE 35  
AREA 26  
34-34N 119-07E

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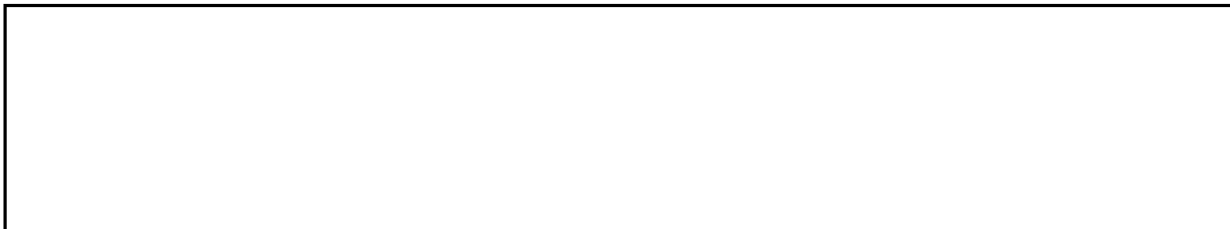
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AREA 27

Liencheng, Fukien 25-47N 116-48E WAC 498

No significant mining activity was observed within the 25 nm-radius search area.

PHOTOGRAPHY



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AREA 28

Liling, Hunan 27-41N 113-30E WAC 498

20 nm NE of Liling at 27-47N 113-37E (Figure 36). Prominent earth scarring and earth removal on sides of hill appear to constitute a small but active mining area. A secured probable explosives storage area containing two small buildings lies between two protecting hills to the south. Several support buildings are immediately below site on south side. Served by road and rail spur. A similar rail-served mining area lies 3 nm east.

12 nm east of Liling at 27-38N 113-43E. Relatively insignificant mine consists of a small elongated excavation in hilly area with minor earth scarring nearby. A probable explosives storage area is approximately 0.5 nm south.

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26 nm SW of Liling at 27-25N 113-05E. A small open-pit mine is located near main rail line. Only three support buildings are evident in the area of the mine. Served by rail spur.

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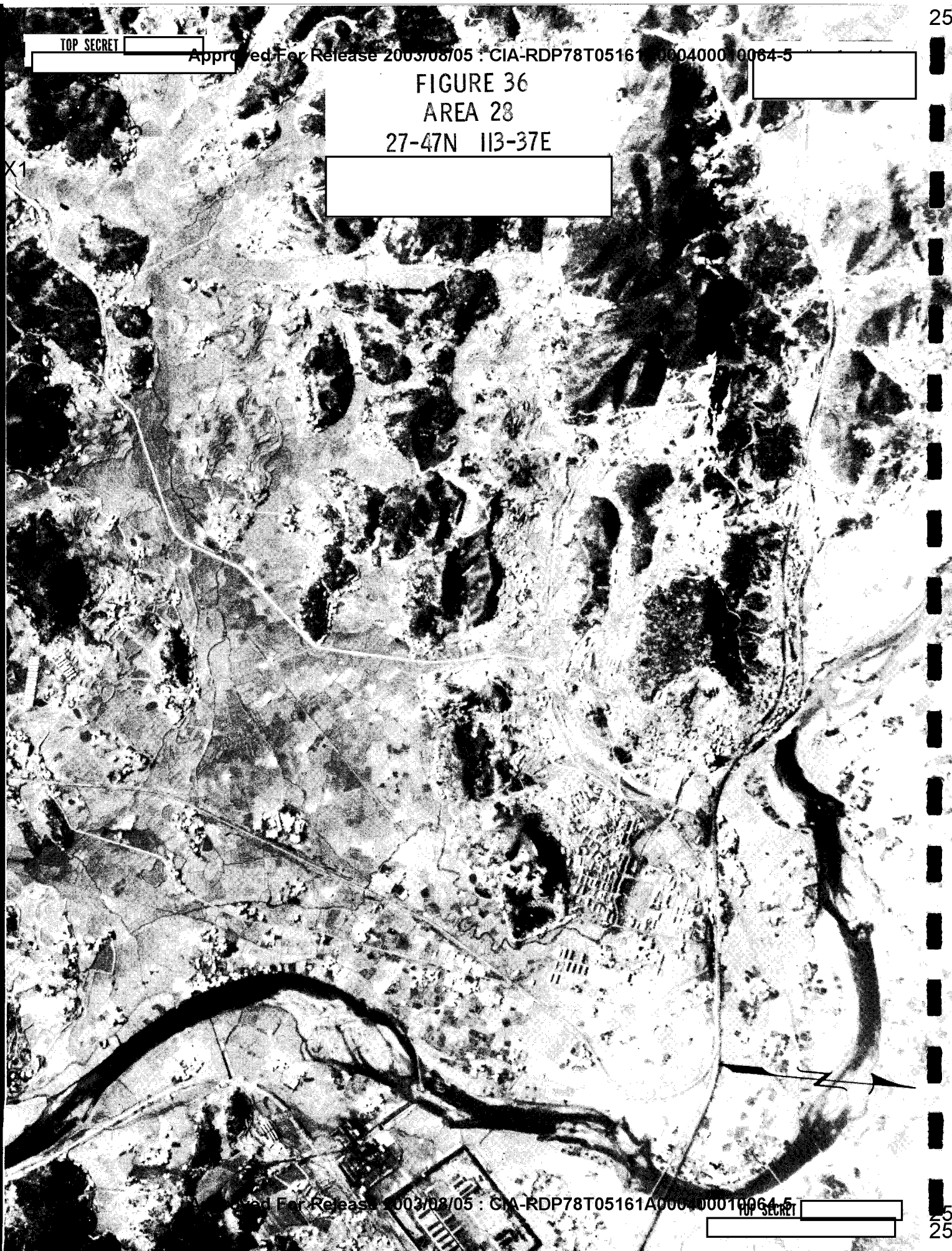
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FIGURE 36  
AREA 28  
27-47N 113-37E



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# AREA 29

Lochang, Kwangtung 25-08N 113-20E WAC 498

29 nm north of Lochang at 25-38N 113-19E (Figure 37). Active mining district in mountainous area appears to consist of older surface excavations and more recently of underground mining, as evidenced by waste piles. Large housing support area and other support buildings present. Secured explosives dump immediately east of mining area.

25 nm NW of Lochang at 25-28N 113-07E (Figure 38). Small but active area of underground mines appears very old. Probable primary processing facility and considerable housing present. Mining area is served from the south by a rail spur and a powerline, both of which terminate at the mine site.

13 nm SE of Lochang at 25-00N 113-35E (Figures 39 and 40). Large underground mining area extends over an eroded mountain area of approximately 5 square nm. Area contains considerable support housing of new construction and numerous support buildings. Extensive prospect trenching is in immediate mining area. Mines are rail served.

16 nm east of Lochang at 25-07N 113-38E (Figure 41). This underground mining area is similar to and approximately 3 nm north of the immediately preceding area. The rail line serving that area terminates at this mining site. Considerable housing and support buildings are present.

20 nm NNE of Lochang at 25-24N 113-32E. Small, active underground mine is located at terminus of mountain road. A small possible processing facility is present. A larger nondescript area of irregular surface scarring and possible underground mining is 1 nm SW. Several support buildings are in both areas, and support housing is located in nearby village. There is surface prospecting in the area.

A portion of this search area falls within Area 37, q.v.

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FIGURE 37  
AREA 29  
25-38N 113-19E



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FIGURE 38

AREA 29

25-28N 113-07E

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FIGURE 39  
AREA 29  
25-00N 113-35E



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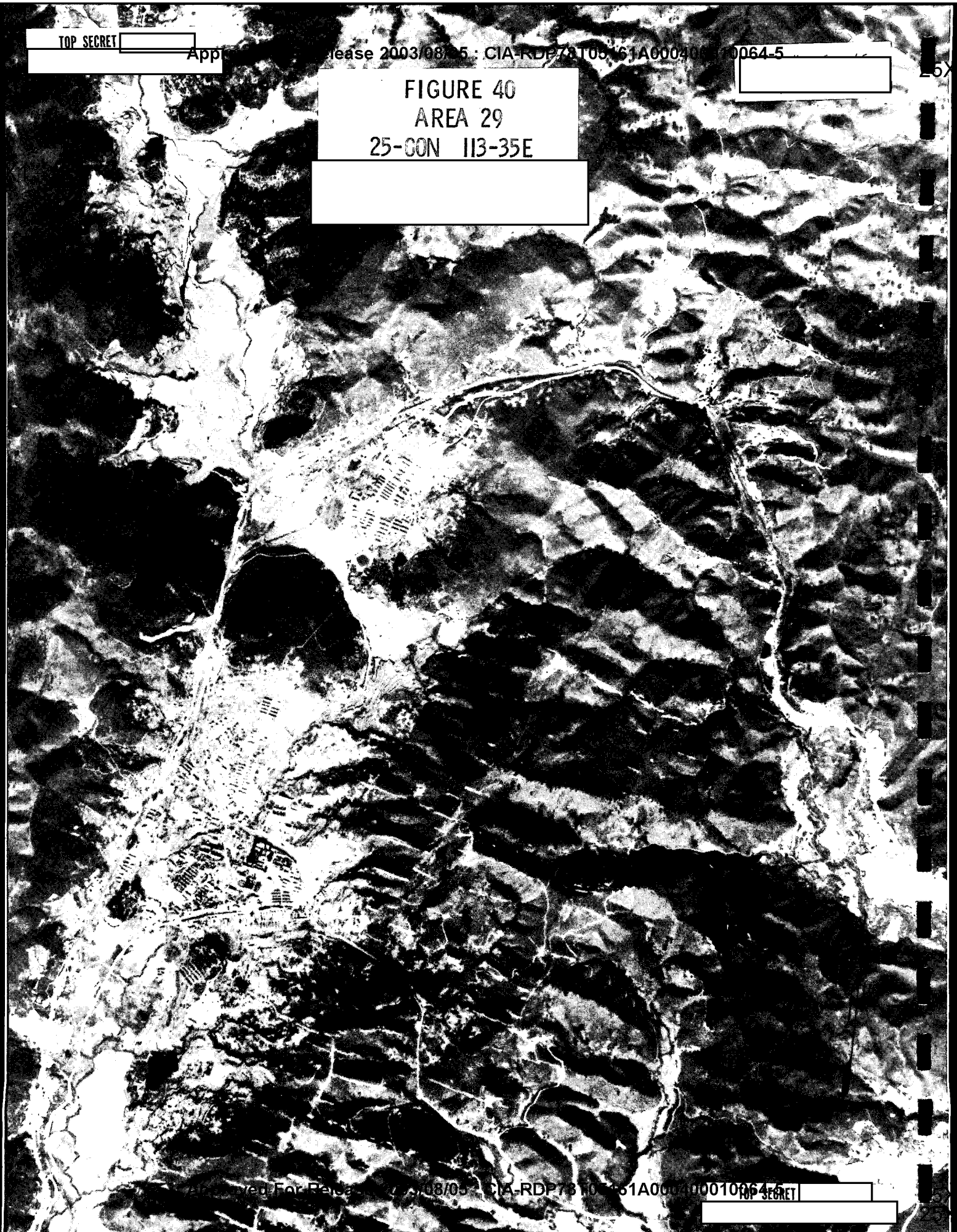


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FIGURE 40  
AREA 29  
25-CON 113-35E



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FIGURE 4I  
AREA 29  
25-07N 113-38E



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AREA 30

Lupao (Lupaohsu), Kwangtung 23-21N 112-53E WAC 614

25 nm south of Lupao at 22-58N 112-51E (Figure 42). Active mine consists of surface excavations on hillside covering approximately 25 acres. Some support buildings are nearby. Road and river served.

8 nm east of Lupao at 23-22N 113-03E (Figure 43). Mining area, located in hills, consists of three large open-pit excavations, each with bench-type mining in progress. Three other small open pits immediately east appear abandoned. Some support housing and a few other support buildings are present. Road and river served.

8 nm NW of Lupao at 23-28N 112-49E. Small surface mining area is located around northern base of hill. No support buildings evident. Appears relatively insignificant.

26 nm NE of Lupao at 23-38N 113-15E. Very small mine is in low-lying hills with considerable parallel prospect-type scarring nearby. Served by inferior road. No significant support facilities apparent.

Most of this search area overlaps Area 36, q.v.

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ACIC. USAF Operational Navigation Chart, Sheet J-11, scale 1:1,000,000, 4th ed, December 1964 (UNCLASSIFIED)

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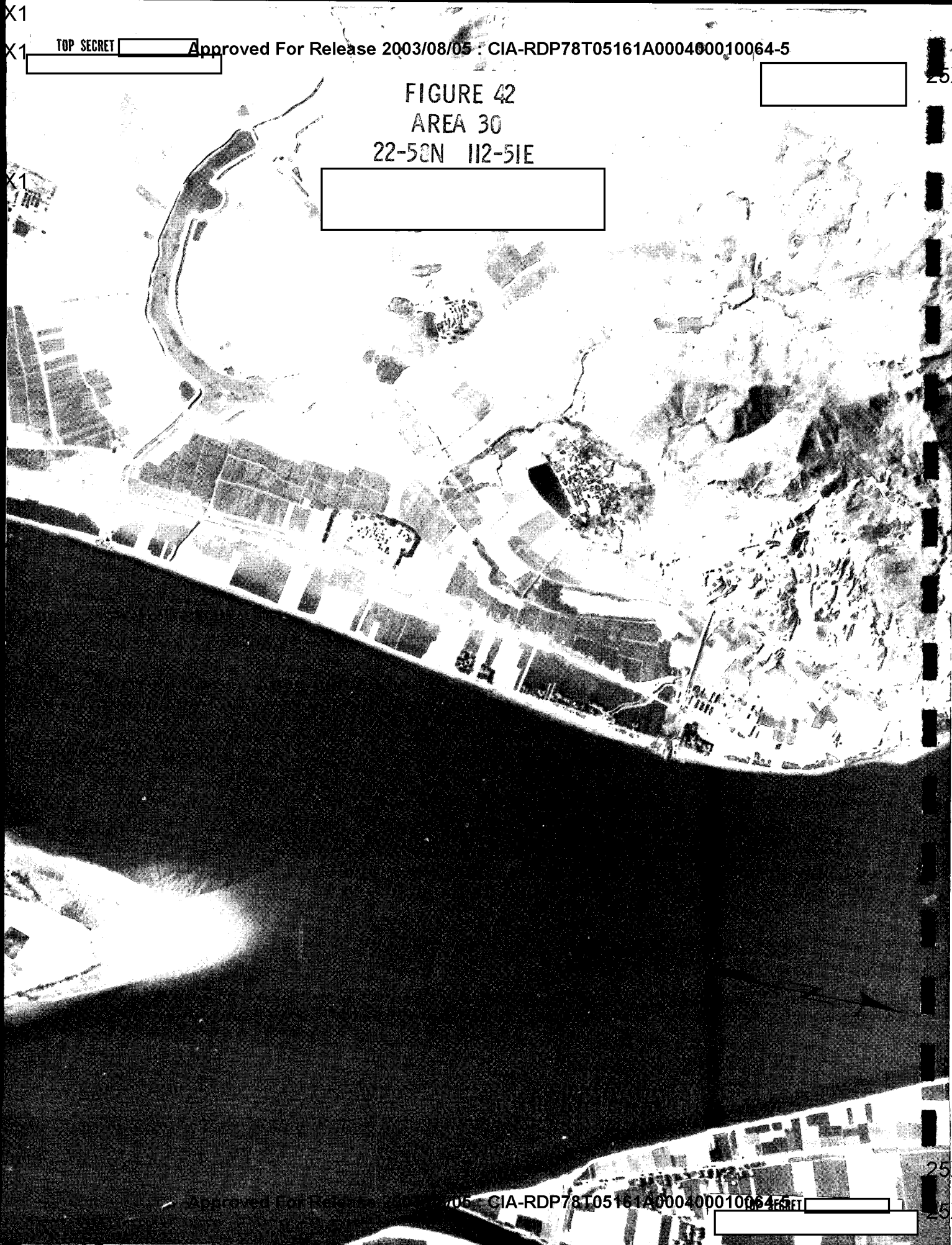
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FIGURE 42  
AREA 30  
22-52N 112-51E



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FIGURE 43

AREA 30

23-22N 113-03E



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AREA 31

Nanchang, Kiangsi 28-38N 115-56E WAC 493

Most of this search area overlaps Area 57, and the mining activity observed within it is reported under Area 57, q.v.

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AREA 32

Nancheng, Kiangsi 27-33N 116-35E WAC 498

No mining activity of significance was observed within the 25 nm-radius search area. The extreme northern and western portions of this search area fall within Areas 52 and 16 respectively.

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## AREA 33

Nanhsiung, Kwangtung 25-07N 114-18E WAC 498

Mining activity is located throughout the northern half and the SW quadrant of the search area. All are located in what appears to be intrusive mountain terrain in rather remote areas not easily accessible. Most of the mining areas are probably active, and practically all have support housing either present at the site or within one or two miles, usually in the stream valley nearest to the mining site. The mines appear to be chiefly adit or surface-vein excavations. A large ore processing mill is located at Tayu, 16 nm north of Nanhsiung. The mining areas, with brief descriptions, are as follows:

14 nm west of Nanhsiung at 25-01N 114-03E (Figure 44). Small mining area is located at terminus of tertiary mountain road. A small support area is 2 nm north in an isolated mountain valley.

12 nm NW of Nanhsiung at 25-15N 114-09E (Figure 45). Mining area consists of numerous open trenches and possible adits in an intrusive mass. Support housing area 1 nm south contains at least 50 buildings. A similar but smaller mining area is located 3 nm SW. The housing area appears to support both mining areas.

23 nm NW of Nanhsiung at 25-19N 113-56E (Figure 46). This is a small mining area with concentrated prospect trenching in the immediate area.

7 nm south of Nanhsiung at 25-01N 114-18E. Mountain-top surface excavations cover approximately 10 acres. A power trace serves the mine from the north.

12 nm south of Nanhsiung at 24-55N 114-16E. Small underground mining area is served by power trace continuing south from the mine immediately above. Mine looks old. Support housing is present.

21 nm SW of Nanhsiung at 24-48N 114-07E. Mining site in rugged mountain terrain covers approximately 25 acres. It is typical of the mines within the search area, with much surface scarring and probable tunnels/adits. Main support housing is 1 nm north, with some support housing at the mine site.

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24 nm south of Nanhsiung at 24-44N 114-11E. This mine resembles closely in size and features the mine described on the preceding page. Randomly located support housing and other buildings are located at the mine site. Served by narrow tortuous mountain road.

10 nm NW of Nanhsiung at 25-10N 114-14E. Mining activity consists chiefly of parallel prospect trenching over a small area.

23 nm west of Nanhsiung at 25-13N 113-53E. Very small mine, with prospect trenching in area. Appears relatively insignificant.

Portions of this search area and some of the mines observed and reported in it fall within Areas 10, 34, 40 and 46, q.v.

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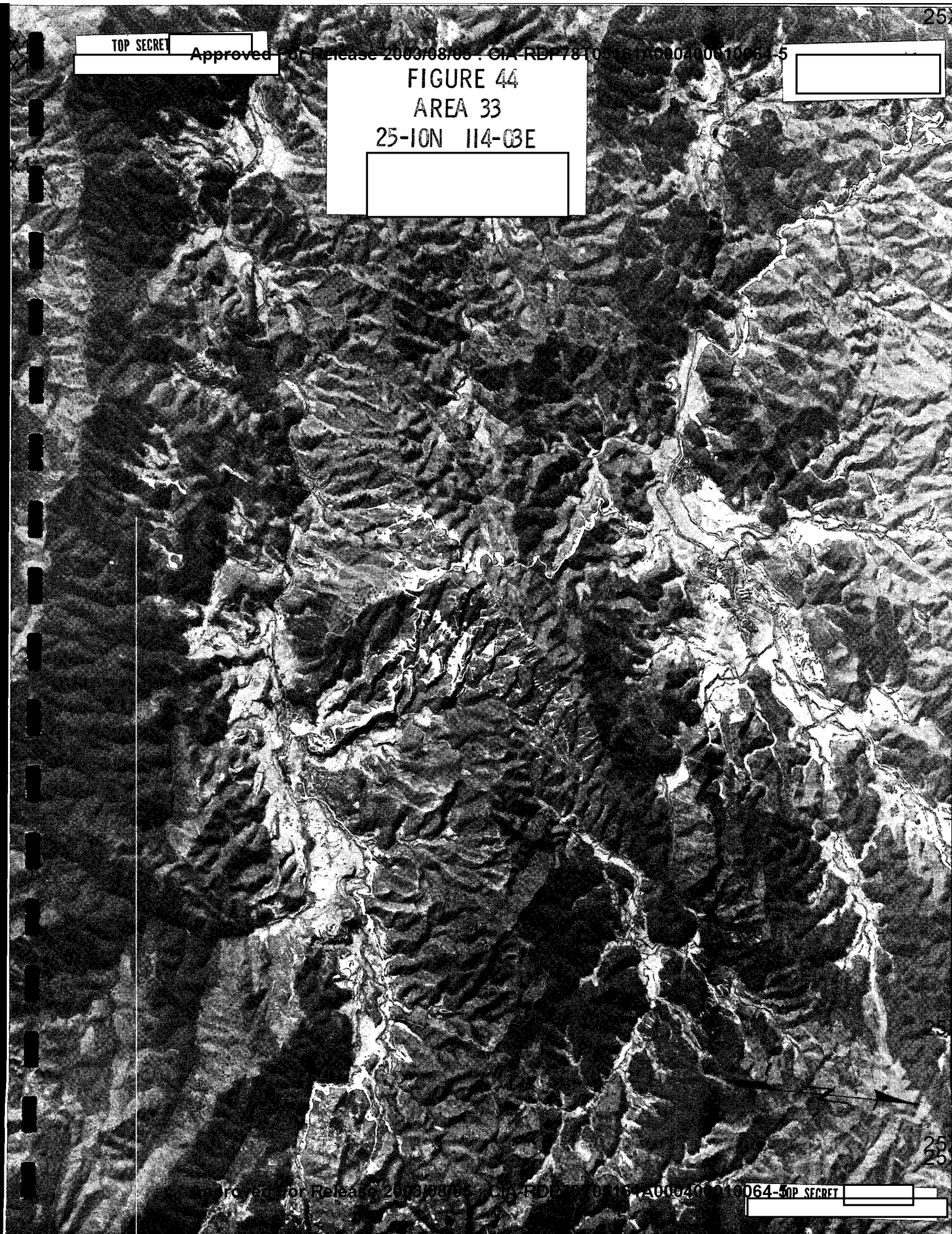
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FIGURE 44  
AREA 33  
25-10N 114-03E





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FIGURE 45  
AREA 33  
25-15N 114-09E

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FIGURE 46

AREA 33

25-19N 113-56E



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## AREA 34

Nankang, Kiangsi 25-41N 114-52E WAC 498

A large mining district that intermittently covers a mountainous area of approximately 50 square nm is centered around an area 20 nm SW of Nankang. It consists of six separate mining areas, all fairly extensive and active. All of the areas are similar, characterized by numerous small surface diggings and tunnels/adits. The mining district apparently has been worked for many years, and a considerable number of support buildings, including housing, are located throughout the district. An ore concentration plant serving the district is situated at Tayu at 25-23N 114-21E (Figure 47). The six mining areas are as follows:

27 nm SW of Nankang at 25-25N 114-18E (Figure 48). An overhead conveyor line connects the base of this mine to the Tayu ore plant 2 nm south.

26 nm SW of Nankang at 25-28N 114-19E (Figure 49). This mine and the one immediately above appear to be the largest and most active of the group.

10 nm SW of Nankang at 25-36N 114-32E. Mining area extends over a distance of approximately three linear miles with extensive surface diggings.

17 nm SW of Nankang at 25-32N 114-27E. This is a relatively small mining area.

21 nm SW of Nankang at 25-31N 114-23E (Figure 50). Mining area consists of both underground and surface mining.

30 nm SW of Nankang at 25-29N 114-13E. Area consists of small but active tunnel/adit mines. A similar but smaller mining area is 1 nm west. A probable powerline connects the two areas.

18 nm ENE of Nankang at 25-46N 115-04E. Small but active mining area is typical of most of those described above in that it consists of both underground and surface excavating. No support buildings are apparent. Served by tortuous tertiary road over mountains. An insignificant-looking mining area of surface diggings is located about 2 nm south.

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37 nm east of Nankang at 25-39N 115-26E (Figure 51). Active mountainous mining area of tunnels/adits covers approximately 140 acres and is connected by overhead cable transport to a concentrating plant 1 nm SW. A large support housing area is adjacent to the plant site. Numerous scattered support buildings are in the mining area.

The extreme SW portion of this search area, containing extensive mining activity, falls within Area 33, q.v.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, Scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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FIGURE 47  
AREA 34  
25-23N 114-21E

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FIGURE 43  
AREA 34  
25-25N 114-18E

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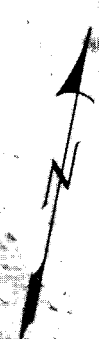


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FIGURE 49  
AREA 34  
25-20N 114-19E



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FIGURE 50  
AREA 34  
25-3IN 114-23E

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FIGURE 51  
AREA 34  
25-39N 115-26E

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## AREA 35

Nanking (Nanching), Kiangsu 32-03N 118-46E WAC 386

13 nm south of Nanking at 31-49N 118-48E (Figure 52). Large surface mine has resulted in removal of one side of hill outcrop with bench mining underway on exposed face. Small pit excavations are present on the outcrop. Mine is served by rail spur with ore-loading facility and support housing 0.75 nm north. Active.

10 nm SE of Nanking at 31-57N 118-56E (Figure 53). Several surface excavations are located on hill outcrops. Support housing nearby. Served by well used secondary road terminating in area. A smaller and similar mining area is located 1.5 nm NW.

7 nm south of Nanking at 31-53N 118-44E (Figure 54). Mine consists of deep pit and probable underground mines on upper slope of small intrusive mass. Rail spur terminates at base of mountain, from which point two inclined rail/cable lines lead up to the mine, each serving a different level. Support housing is located 0.5 nm NE. Smaller mines are situated on the SW side of the intrusive mass approximately 1 nm SW, and a small area of surface pitting is about 2 nm north. Active.

15 nm ENE of Nanking at 32-10N 119-04E (Figure 55). Series of several large and small open-pit excavations extend over a 2 nm linear area along a low ridge. An ore-processing plant is located in central part of the area. Mines are adjacent to main rail line and are served by spurs and sidings from the main line. Support housing is present. Active.

11 nm ENE of Nanking at 32-09N 118-58E (Figure 56). Mining area consists of a large open-pit excavation and several nearby smaller excavations. An active ore processing mill is present. Housing is adjacent to mining area. Served by rail spur.

28 nm NW of Nanking at 32-17N 118-17E (Figure 57). Two large adjacent open-pit mining areas are just outside the NW quadrant of the search area, 0.5 nm west of Chuhsien. Each is served by a rail spur.

21 nm south of Nanking at 31-42N 118-42E (Figure 58). Area consists of small surface pits and probable adits located on east flank of intrusive outcrops. Considerable prospect-type trenching in the area. Support housing is located immediately south. A smaller similar mining area is approximately 1 nm SW.

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2 nm south of Nanking at 31-58N 118-45E. Mining area comprises two areas of surface excavations, one approximately 1.5 nm west of the other. Relatively insignificant compared to other mines within the search area.

There are many other smaller and less significant mines throughout the search area of the same general type as the foregoing. Most appear active.

The extreme SW portion of this search area and some of the mines observed and reported fall within Area 47, q.v.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet G-10, Scale 1:1,000,000  
3d ed, December 1964 (UNCLASSIFIED)

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FIGURE 52  
AREA 35  
31-49N 118-48E

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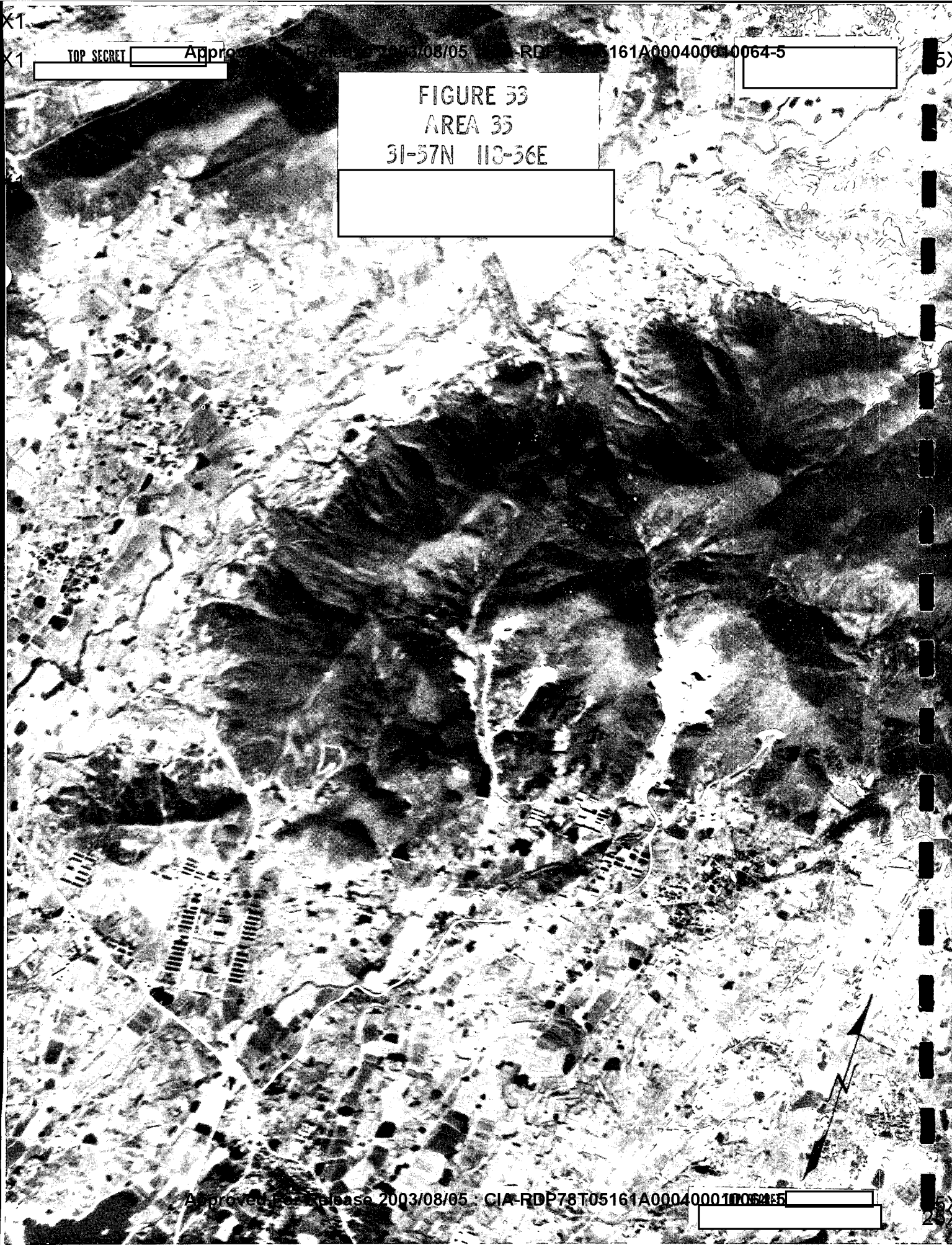
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FIGURE 53  
AREA 35  
31-57N 118-56E





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FIGURE 54

AREA 35

31-53N 118-44E

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FIGURE 55  
AREA 35  
32-10N 119-04E

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FIGURE 56  
AREA 35  
32-09N 118-58E

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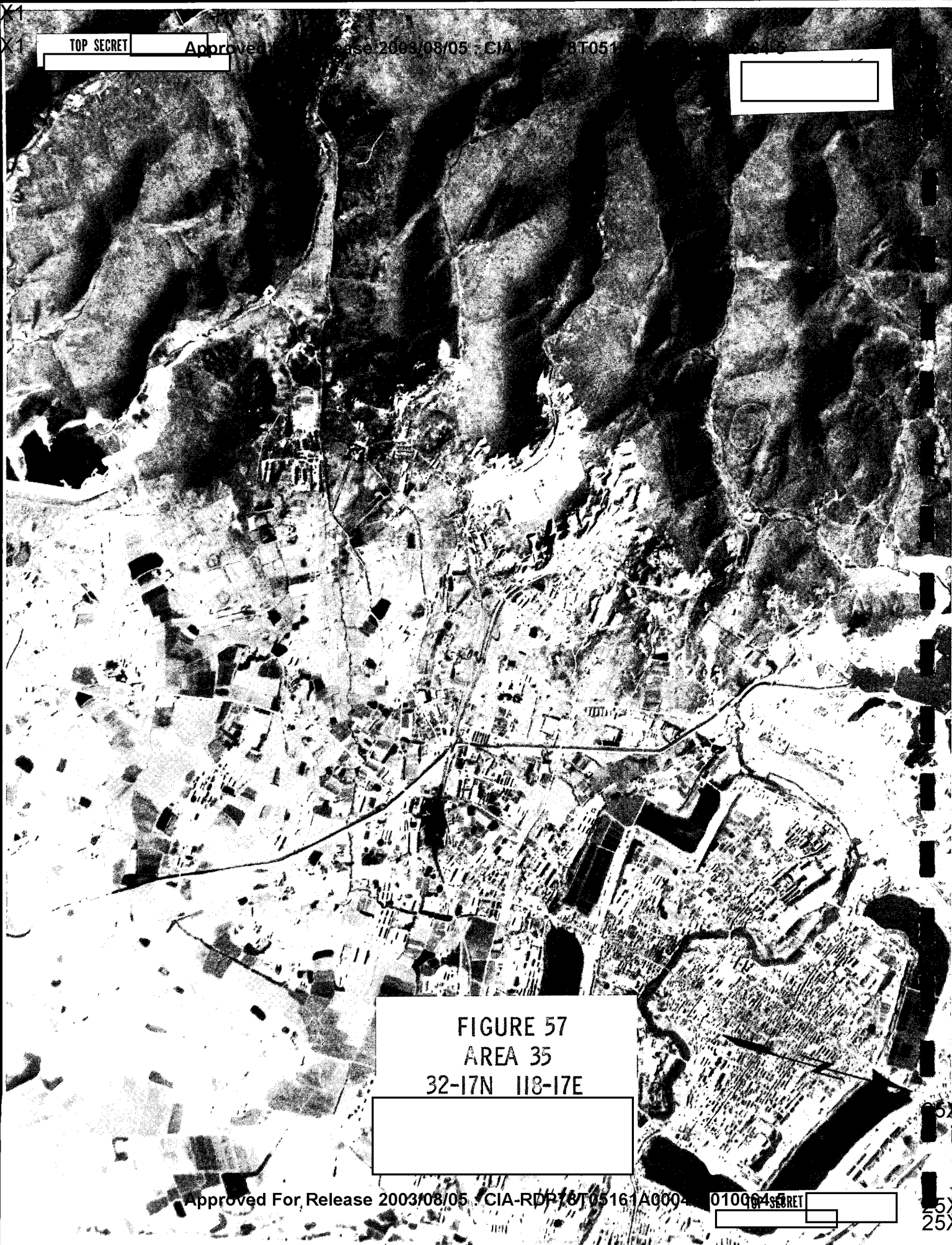


FIGURE 57  
AREA 35  
32-17N 118-17E





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FIGURE 58  
AREA 35  
31-42N 118-42E

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AREA 36

Sanshiu (Sanshui), Kwangtung 23-10N 112-49E WAC 615

Most of this search area overlaps Area 30, and the mining activity observed falls within and is reported under Area 30.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet J-11, scale 1:1,000,000, 4th ed, December 1964 (UNCLASSIFIED)

AREA 37

Shaokuan (Chuchiang), Kwangtung 24-48N 113-35E WAC 498

13 nm SE of Shaokuan at 24-45N 113-49E. Small mining area in edge of mountains consists of open-pit and underground excavations. An explosives storage area is immediately north, and a small housing area is NE of the mines. A limited amount of prospecting is nearby. Served by trails and inferior roads.

18 nm SE of Shaokuan at 24-34N 113-48E. Numerous small adits and scarring comprise mountainous mining area of approximately 80 acres. Very small housing area immediately south. Served by trails and inferior roads.

18 nm east of Shaokuan at 24-48N 113-58E. Mountainous mining area covers approximately 0.5 square nm. Appears to be adit and surface vein mining. Housing and support buildings are present, but scale limits detailed interpretation. Located at terminus of winding mountain road.

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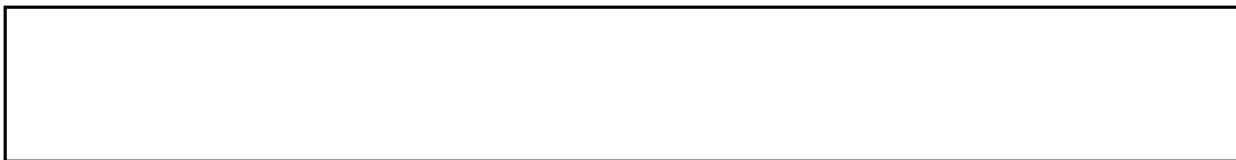
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26 nm east of Shaokuan at 24-43N 114-04E. Mining area covers approximately 20 acres and consists of tunnel/adit mines as evidenced by pattern of waste piles. A small explosives storage area and housing are nearby. A power trace leads into the mining area from the south.

Large portions of this search area, some of which include mining activity, overlap Areas 29, 40, 46 and 48.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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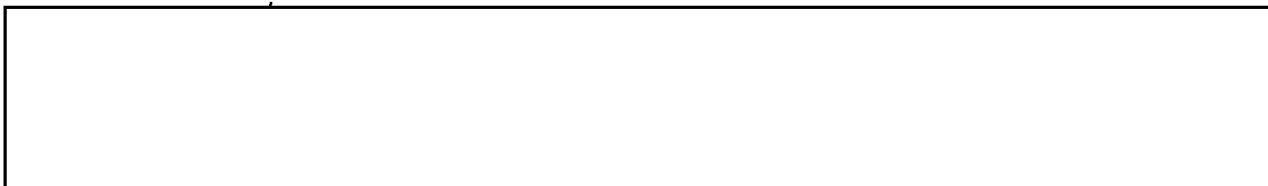
AREA 38

Ch'ich'i Haerh, Heilungkiang 47-22N 123-57E WAC 283

No significant mining activity was observed within the 25 nm-radius search area.

A portion of this search area overlaps Area 23.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet F-9, scale 1:1,000,000, 2d classified ed, January 1963 (CONFIDENTIAL)

AREA 39

Shenyang (Mukden), Liaoning 41-48N 123-27E WAC 290

24 nm south of Shenyang at 41-23N 123-27E (Figure 59). Several underground mines, possibly coal, are located over an approximately 6 square nm area. Housing areas and other support buildings are randomly located throughout the area. Rail spurs serve the entire area. Appears active.

16 nm NE of Shenyang at 42-02N 123-36E (Figure 60). At least five underground shaft mines are located within a 2-nm radius of above coordinates. All are served by rail spur. Housing is located throughout the area.

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20 nm south of Shenyang at 41-28N 123-22E. Open-pit mining area, located at terminus of rail spur, has aspects of local building material source. No support housing evident; however, several small villages are located near by.

25 nm SE of Shenyang at 41-27N 123-44E. Open-pit mining area, covering approximately 8 acres, is adjacent to a rail line. A small number of support houses are nearby.

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ACIC. USAF Operational Navigation Chart, Sheet F-9, scale 1:1,000,000, 2d classified ed, January 1963 (CONFIDENTIAL)

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FIGURE 59  
AREA 39  
41-23N 123-27E

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FIGURE 60  
AREA 39  
42-02N 123-36E



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AREA 40

Shihhsing, Kwangtung 24-57N 114-04E WAC 498

Portions of this search area and all of the mining activity observed and reported fall within Areas 10, 29, 33, 37 and 46, q.v.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

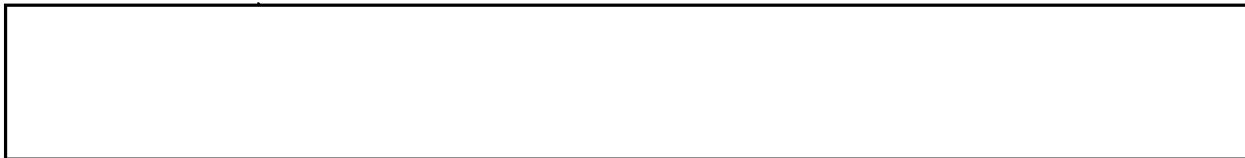
AREA 41

Tachen (Tachen-Chuang), Hopeh 37-41N 114-34E WAC 382

22 nm NW of Tachen at 37-58N 114-18E. Minor surface workings around base of a single large hill appear relatively insignificant. No support buildings present. Small ancient village 0.5 nm east.

24 nm SE of Tachen at 37-22N 114-41E. Shallow surface diggings on isolated hill outcrop generally cover an area of 0.5 square nm. Mining area appears old. No support buildings present. Several small rural villages nearby.

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CHART

ACIC. USAF Operational Navigation Chart, Sheet G-9, Scale 1:1,000,000 2d classified ed, September 1964 (CONFIDENTIAL)

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AREA 42

Taiyuan, Shansi 37-52N 112-34E WAC 382

6 nm west of Taiyuan at 37-53N 112-25E (Figure 61). Mining area, located along base of eastern flank of Lu Shan mountains, extends over a linear area of approximately 4 nm. It consists of numerous surface excavations and quarries, having appearance of limestone mines, served by rail spurs. Two probable cement plants are located in the valley immediately east of the mines. Considerable support housing is in the area. Active.

7.5 nm WSW of Taiyuan at 37-50N 112-25E (Figure 62). Mining area, located along two adjacent mountain valleys on east flank of Lu Shan mountains, consists of several underground mines extending over an area of approximately 4 square nm. Operation appears to be coal mining. Mines are serviced by rail spurs and overhead loaders. Numerous housing and support buildings present. Active.

PHOTOGRAPHY

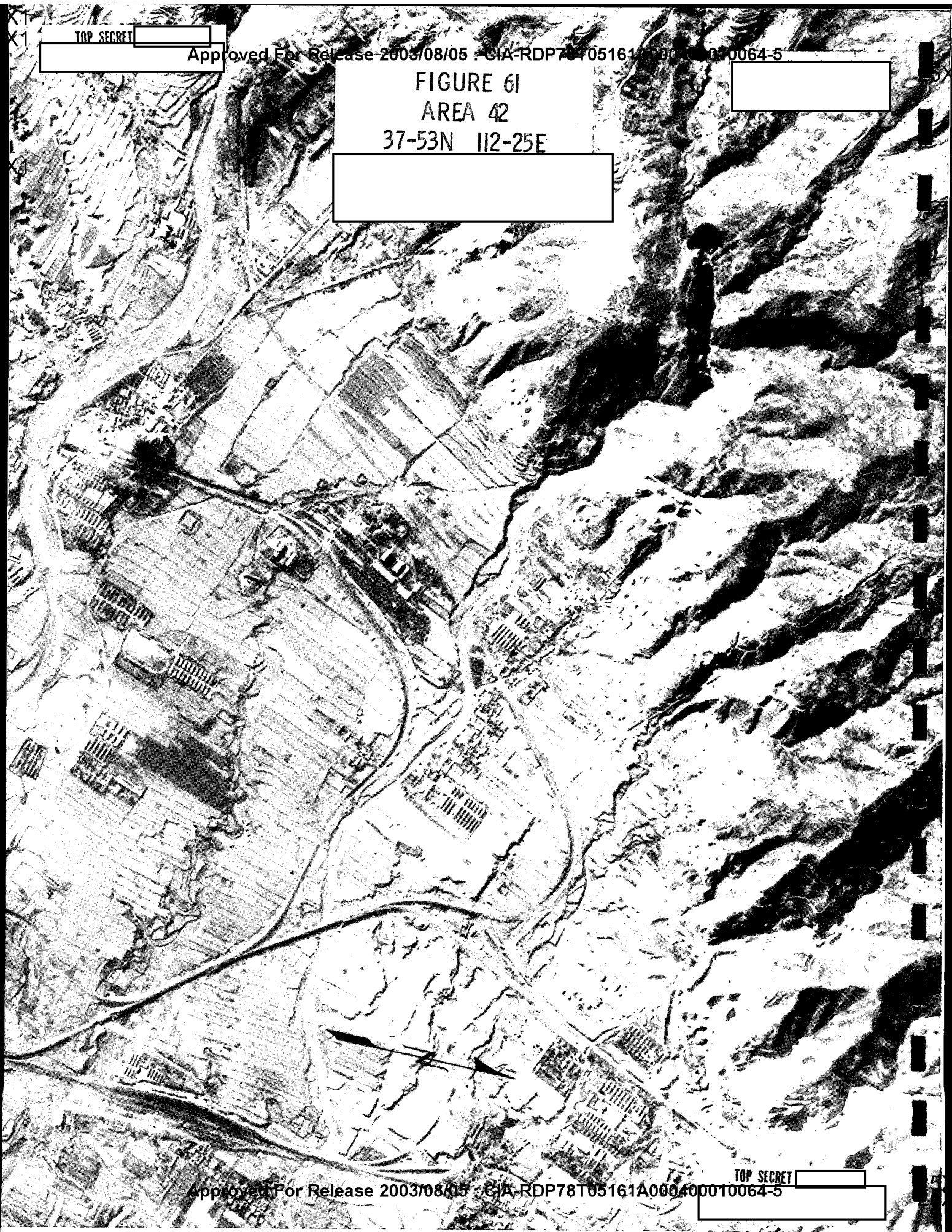
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ACIC. USAF Operational Navigation Chart, Sheet G-9, scale 1:1,000,000, 2d classified ed, September 1964 (CONFIDENTIAL)

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FIGURE 61  
AREA 42  
37-53N 112-25E



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FIGURE 62  
AREA 42  
37-50N 112-25E

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AREA 43

Tsaoshih (Hsiaotuh), Hunan 26-53N 113-08E WAC 498

33 nm NE of Tsaoshih at 27-03N 113-47E (Figure 63). Active mining area located in mountain defile appears to have been worked for many years. Consists of numerous adit mines at different levels. Considerable housing present. Road served, with trails and cable transport serving immediate mining area. Secured probable explosives storage area 1.5 nm south of mining area.

8 nm west of Tsaoshih at 26-55N 113-02E (Figure 64). Active mining area consists of underground and surface mines with many waste tailings from adits evident. Explosives storage area in protective cove immediately south. Support housing in valley below. Several other support buildings in area of mines. Served by secondary road to base of mining area, with many small trails connecting the separate mines.

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FIGURE 63  
AREA 43  
26-53N 113-08E

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FIGURE 64  
AREA 43  
26-55N 113-02E

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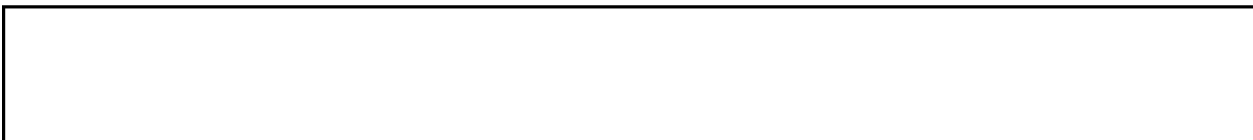
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AREA 44

Tuchang, Kiangsi 29-15N 116-13E WAC 493

Most of the northern half of this search area and the mining activity observed and reported falls within Area 9. q.v. No mining activity of significance was observed in the remainder of the area.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, Scale 1:1,000,000 3d ed, October 1964 (UNCLASSIFIED)

AREA 45

Tungcheng, Anhwei 31-03N 116-58E WAC 493

23 nm east of Tungcheng at 31-05N 117-24E (Figure 65). Active mining area consists of numerous pit mines on peaks and slopes of small mountain mass and considerable prospect-type trenching (trending east-west). Mining district appears to be very old; many of the pits are apparently abandoned. Stream wash gives evidence of much waste disposal. Probable primary processing plant located at mine site. Served by good local road.

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ACIC. USAF Operational Navigation Chart, Sheet H-12, Scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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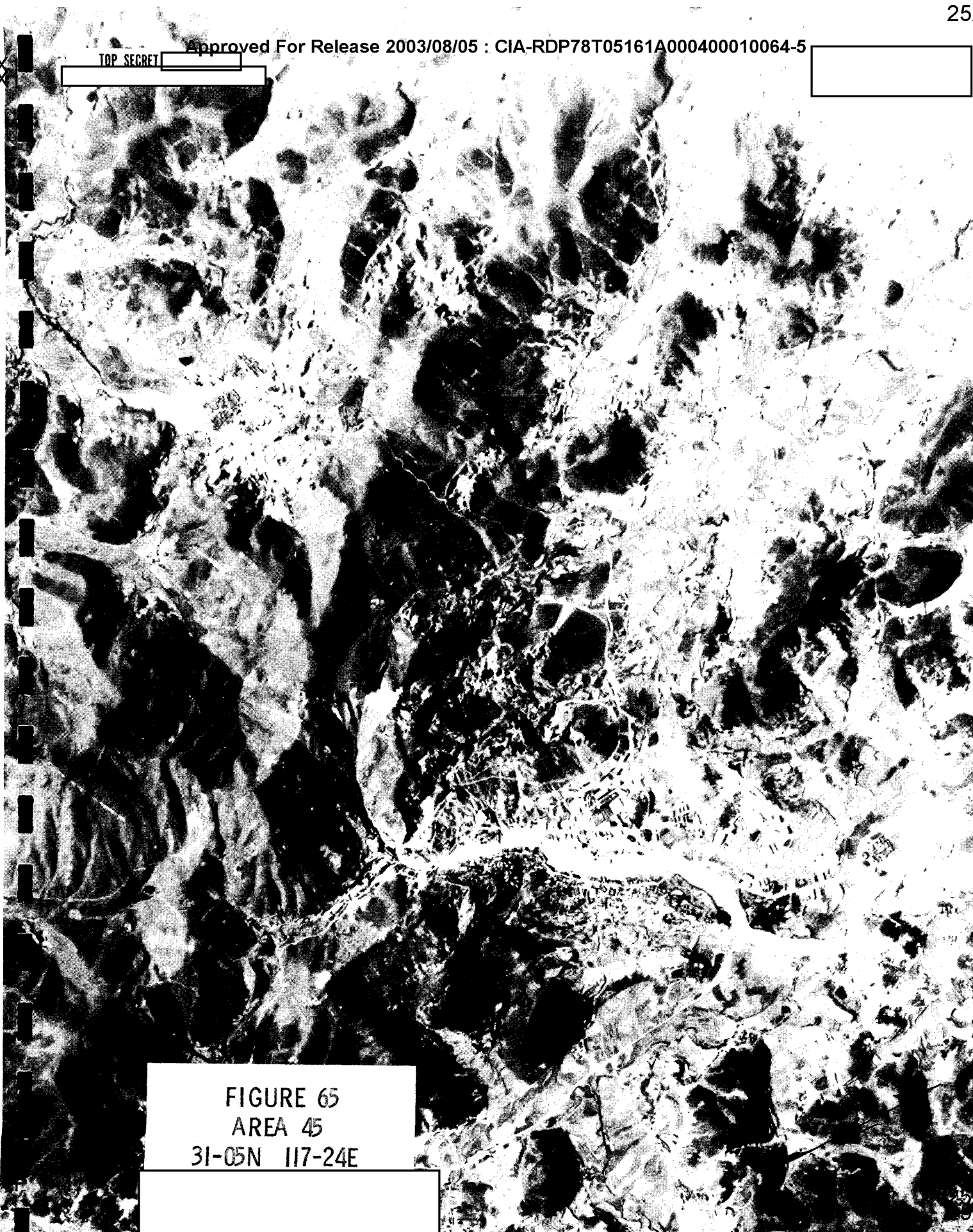


FIGURE 65  
AREA 45  
31-05N 117-24E

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## AREA 46

Wengyuan, Kwangtung 24-21N 114-07E WAC 498

18 nm NNE of Wengyuan at 24-37N 114-17E (Figures 66 and 67). General mining area centered about these coordinates embraces approximately 4 square nm. Appears to be underground adit-type mining with considerable parallel prospect trenching in the area. Located in mountainous area and served by very tortuous mountain roads. A large newly developed support area is located on the west side of the mining district. It contains numerous housing and other support buildings, including possible ore-processing buildings and a large secured explosives storage area. A power trace leads into the support area from the south.

13 nm NNE of Wengyuan at 24-35N 114-13E. Very small probable underground mine located in hills on outskirts of village of Pan-chi. Several support buildings, one with adjacent ore pile, are near the mine site. No housing evident except village. A secured probable explosives storage area is 0.5 nm west of the mining area in a protected cove. Served by well used road.

20 nm NE of Wengyuan at 24-34N 114-23E (Figures 68-70). Active underground mining area covers approximately 50 acres. Much spoil material has washed downstream. Considerable parallel prospect trenching. Served by road from Chang-Kuang-Ying, 1.5 nm north, where a large ore processing plant (reported to be for tungsten) and support housing are located.

11 nm NW of Wengyuan at 24-28N 113-58E (Figure 71). Large scarred area covers approximately 0.5 square nm in mountainous terrain. Appears to consist of open vein and underground mining. Support housing is located immediately west. Served by long winding road leading westward across mountains to Wengyuan. Active.

There are several other small but insignificant mines located within the search area. Outlying portions of this search area and some of the mining activity observed and reported fall within Areas 10, 33, 37, 40 and 48, q.v.

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ACIC. USAF Operational Navigation Chart, Sheet H-12, Scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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FIGURE 66  
AREA 46  
24-37N 114-17E

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FIGURE 67  
AREA 46  
24-37N 114-17E

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FIGURE 68  
AREA 46  
24-34N 114-23E

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FIGURE 69  
AREA 46  
24-34N 114-23E

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FIGURE 70  
AREA 46  
23-34N 114-23E

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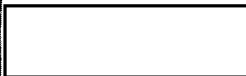


FIGURE 71  
AREA 46  
24-20N 113-58E



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## AREA 47

Wuhu, Anhwei 31-21N 118-22E WAC 493

20 nm NE of Wuhu at 31-38N 118-35E (Figure 72). Extensive open-pit mining area consisting of three separate mines is located over an area of approximately 2 square nm. A large amount of housing is located in immediate area. Served by road and rail spur with several branches of spur terminating in area. Unidentified industrial construction activity is just north of westernmost mine. Active.

13 nm NE of Wuhu at 31-32N 118-30E (Figure 73). A pit excavation is located at the peak of a small round hill on north side of a stream. A similar but smaller open-pit mine is on the south side of the stream, directly across from the other, on a small rounded outcrop. Neither area appears to have an associated support area.

10 nm NE of Wuhu at 31-27N 118-30E (Figure 74). Entire hill outcrop, approximately 0.25 square nm in area, is apparently being mined away. One older hillside excavation is located 1 nm NNW and another 1.5 nm SSW. Support housing is in the area.

3 nm SE of Wuhu at 31-18N 118-26E (Figure 75). Two open-pit, quarry-like mines, similar to others in the search area, are located on opposite ends of an elongated hill approximately 0.5 nm apart. A smaller mine is located immediately across stream to the west. Small support areas are nearby.

19 nm SW of Wuhu at 31-06N 118-05E (Figures 76 and 77). Numerous adit and pit mines centered about the above coordinates, some served by rail spurs, are located along flanks and base of a crescent-shaped probably intrusive mass, over an area approximately 6 nm long by 2 nm wide (maximum dimensions). A few of the mines appear old and inactive; however, most appear relatively new, and the area generally is very active. A large rail-loading conveyer-hopper facility services the largest mine. Support housing is present throughout the area.

24 nm NNE of Wuhu at 31-43N 118-32E. Small mine, located at base of foothill, appears only fairly active. Prospect scars mark the adjacent hill terrain to the south. Relatively insignificant compared to other nearby mines within the search area.

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16 nm NE of Wuhu at 31-35N 118-32E. Small mining area consists of much surface excavation and pitting of low-lying probably intrusive knob. Looks old.

11 nm SW of Wuhu at 31-12N 118-13E. Two very small hilltop excavations, one approximately 1 nm south of the other, appear minor in relation to the other mines within the search area.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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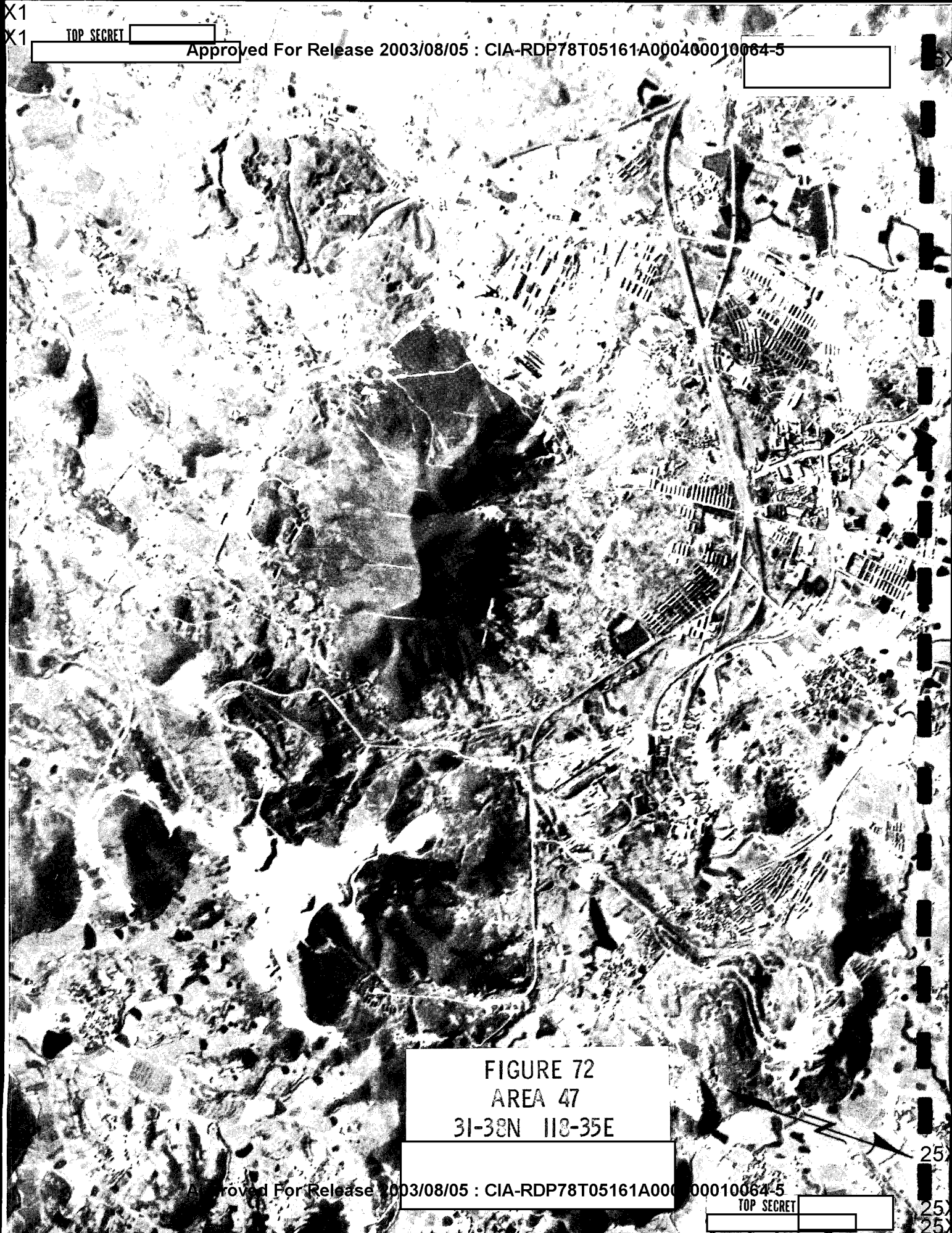


FIGURE 72  
AREA 47  
31-38N 118-35E

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FIGURE 73  
AREA 47  
31-32N 116-30E

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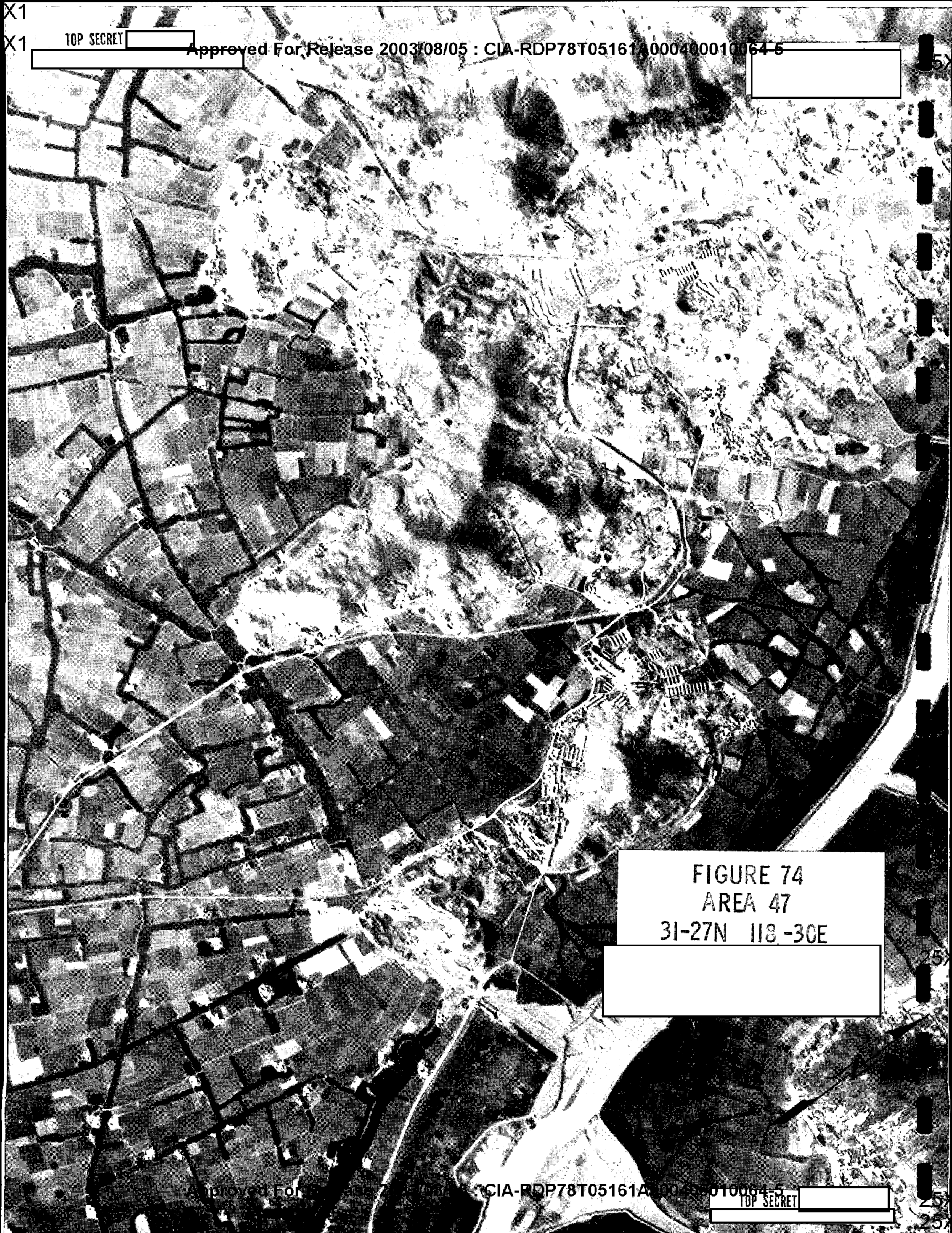


FIGURE 74  
AREA 47  
31-27N 118-30E

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FIGURE 75  
AREA 47  
31-13N 112-26E

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FIGURE 76  
AREA 47  
31-06N 118-05E

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FIGURE 77  
AREA 47  
31-06N 118-05E



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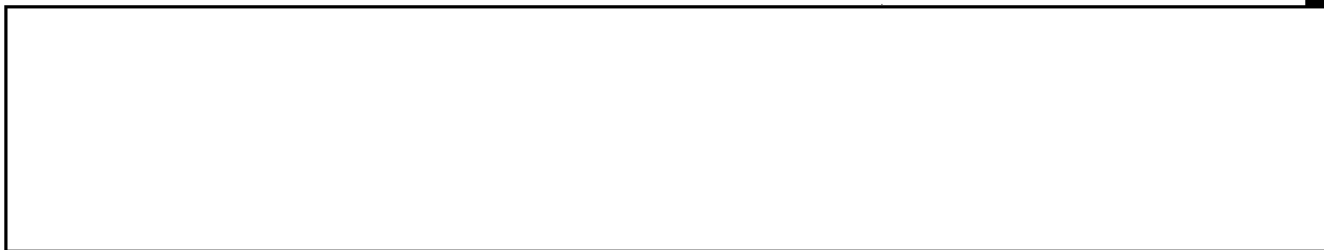
## AREA 48

Yingte, Kwantung 24-10N 113-24E WAC 498

20 nm NW of Yingte at 24-25N 113-07E (Figure 78). Mining area in edge of mountains comprises approximately 40 acres. Appears to be an old mine that underwent a progression from surface vein to underground mining. Two large waste piles are present. Scattered support housing is located at the mine site. A power trace leads into the mine site from the south.

14 nm north of Yingte at 24-24N 113-27E (Figure 79). Mining site consists of two large open-pit mines, one being actively mined and the other inactive and water-filled. Facilities include a support area containing numerous houses and support buildings. A secured explosives storage area is located 1 nm west. Rail served. Another open-pit mine, partially water-filled and apparently abandoned, is located 2 nm east at terminus of a rail spur. These mines are probably limestone quarries.

10 nm NNW of Yingte at 24-19N 113-20E. Mining area located near base of a hill consists of at least two adits and some surface excavations. A small support area is just east of the mines. A secured explosives storage area is immediately south. Rail served.

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ACIC. USAF Operational Navigation Chart, Sheet H-12, Scale 1:1,000,000, 3d ed, October 1964 (INCLASSIFIED)

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FIGURE 78  
AREA 48  
24-25N 113-07E

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FIGURE 79  
AREA 48  
24-24N 113-27E

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AREA 49

Yushan, Kiangsi 28-40N 118-15E WAC 493

A large portion of this search area and the mining activity observed and reported fall within Area 51, q.v. No mining activity of significance was observed in the remainder of the area.

PHOTOGRAPHY



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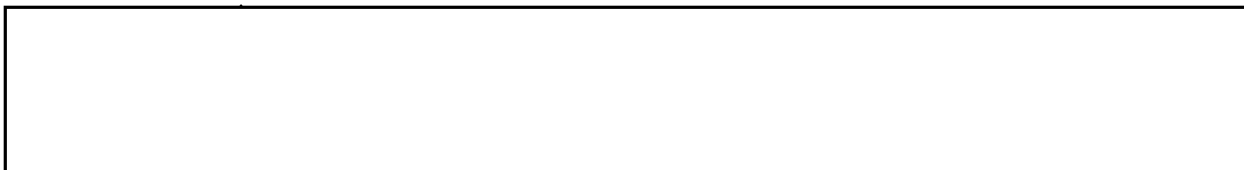
ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

AREA 50

Yutzu, Shansi 37-40N 112-45E WAC 382

Most of this search area and the mining activity observed and reported fall within Area 42, q.v.

PHOTOGRAPHY



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ACIC. USAF Operational Navigation Chart, Sheet G-9, scale 1:1,000,000, 2d classified ed, September 1964 (CONFIDENTIAL)

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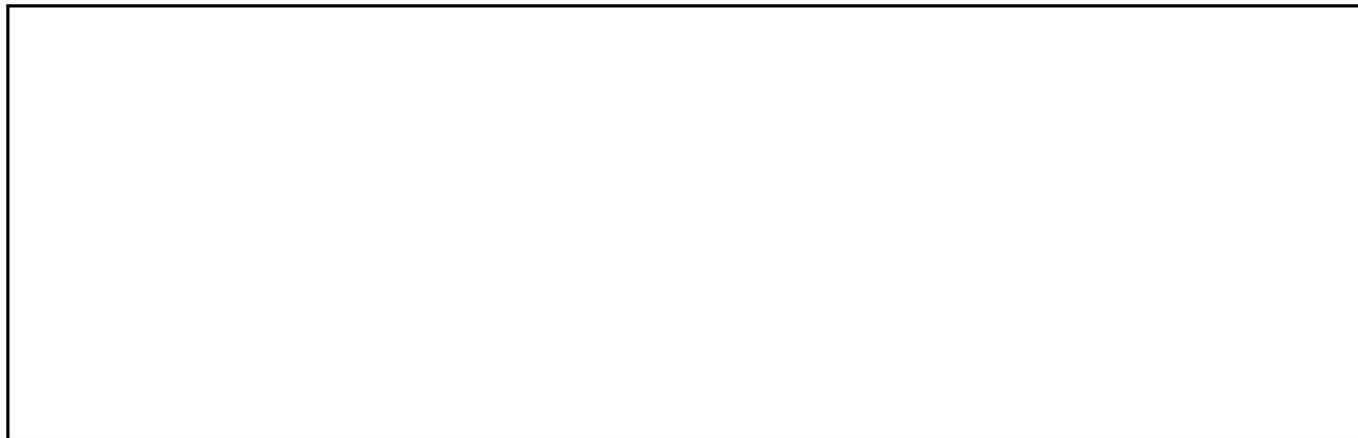
AREA 51

Shangjao, Kiangsi 28-26N 117-58E WAC 493

9 nm WNW of Shangjao at 28-28N 117-47E (Figures 80, 81 and 82). Two mines, a few hundred feet apart, consist of surface excavations and hillside bench/strip mining. Exploration scars and trenches appear on terrain in vicinity of the mines. Support housing and a wall-secured ore processing mill are immediately NW of the mining area. A tailings pond, contained by a dam at either end, is located 0.5 nm NW of the mill. The normal stream flow has been diverted by a canal around the tailings pond. Mines and mill are very active. A main rail line with sidings is located 0.3 nm south of the mill. Ore is brought by trucks directly from the mines to the nearby mill. A small probably abandoned surface mine, served by rail spur, is located 2 nm west. Another small mining area is located 8 nm east.

Portions of this search area overlap Areas 25 and 49. 5X

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ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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FIGURE 30  
AREA 51  
28-28N 117-47E

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FIGURE 81  
AREA 51  
28-23N 117-47E

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MINES

MILL

EXPLOSIVE  
STORAGE

FIGURE 82

AREA 51

23-28N 117-47E

TAILINGS PIPE

TAILINGS POND

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## AREA 52

Kunghsichen (Tunghsiang), Kiangsi 28-14N 116-35E WAC 493

3 nm NE of Kunghsichen at 28-17N 116-37E. Small area of activity consists of shallow surface pits and underground shaft mining in edge of hills. A fair number of haphazardly arranged support buildings of various sizes, including a probable primary crusher, is in the mining area. Entire mining area appears old. A rail spur leads from the mining area southward to an iron smelter operation, with which the mine appears associated, on the eastern outskirts of Kunghsichen.

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ACTIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

## AREA 53

Chinhua, Chekiang 29-07N 119-39E WAC 493

20 nm SSE of Chinhua at 28-49N 119-49E (Figure 83). Small mine consists of deep pit near peak of small hillock. Tailing dump patterns at either side of base of mountain suggest tunnel operations at those points. Possible crude primary processing facility is near base of south side of mountain. Mining area is adjacent to good secondary road. Active.

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14 nm SE of Chinhua at 28-59N 119-53E (Figure 84). Mining operation consists of three linear excavations along crest of a long narrow ridge and probable adit and surface excavations at base of north slope of the ridge. Close parallel prospect trenching extends along crest of the ridge, at right angles to its trend, for approximately 2 nm. Several of the support buildings in the valley below could possibly be a primary ore-processing plant. Mining area lies along good secondary road.

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ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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FIGURE 33  
AREA 53  
28-49N 119-49E

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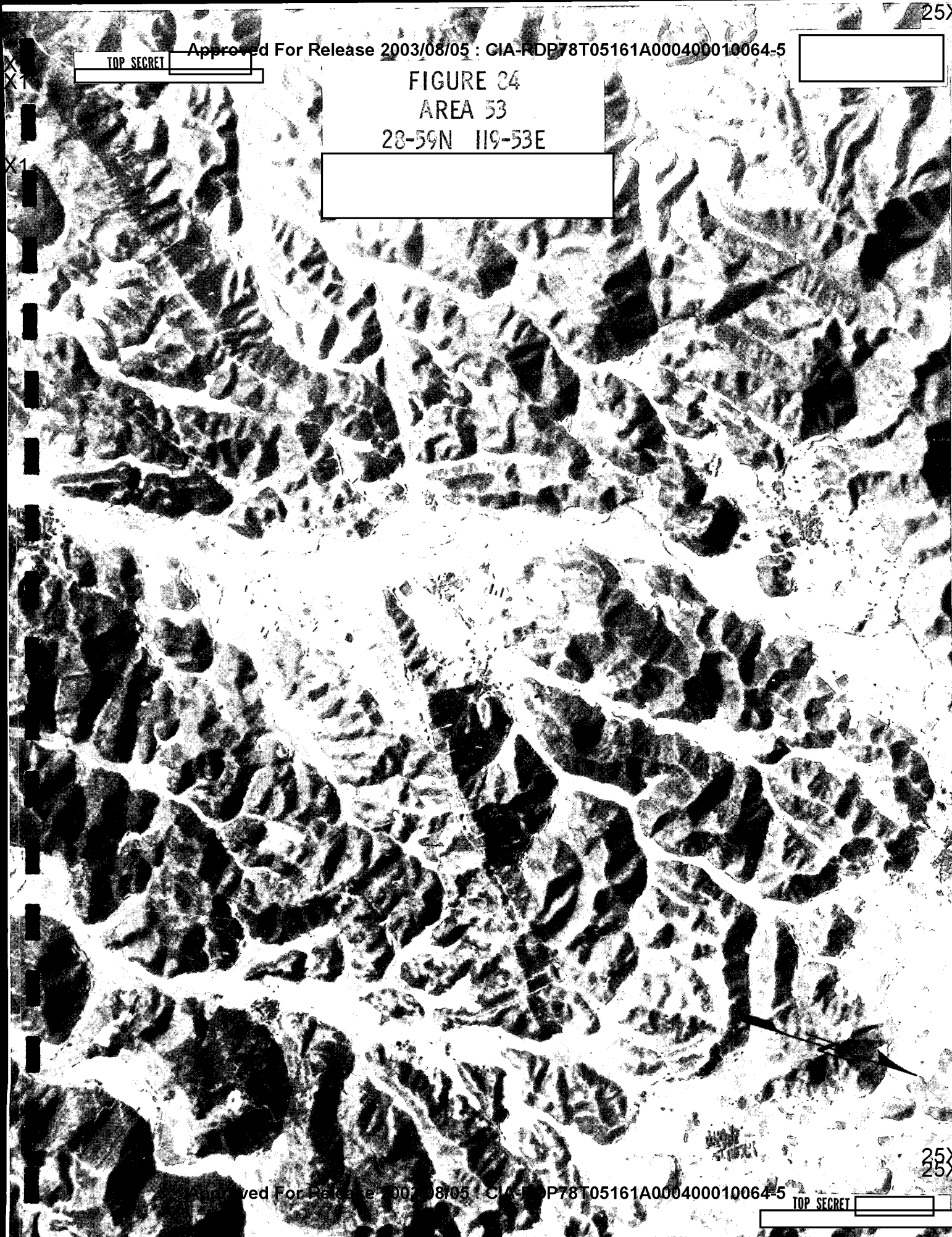
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FIGURE 24

AREA 53

28-59N 119-53E



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## AREA 54

Chen-Hsien, Hunan 25-48N 113-02E WAC 498

6.5 nm north of Chen-Hsien at 25-54N 113-03E (Figure 85). Numerous small road-connected underground mines, and probably some surface mining, are located along a narrow ridge extending over approximately 2 linear nm. An ore processing plant is in the valley on the SE side of the ridge. A secured explosives storage area is in a protected hill area east of the mines. Considerable housing and other buildings are located throughout the mining area and approximately 1 nm SE.

18.5 nm NE of Chen-Hsien at 26-01N 113-16E (Figure 86). Mining district, consisting chiefly of underground mines, extends along rail spur for several miles. Appears old but still active. Area contains numerous housing and support buildings and several rail-loading facilities. A possible ore-crushing plant is located at Chiaokou (25-56N 113-13E).

12 nm SE of Chen-Hsien at 25-42N 113-08E (Figure 87). Active mining area in mountainous terrain is spread over an area of approximately 2 square nm. Appears to consist of recent underground activity and old surface workings. Contains several support areas, randomly located. Served by mountain roads.

18 nm WSW of Chen-Hsien at 25-42N 112-42E (Figures 88 and 89). Area of outcrop terrain of less than 1 square nm contains considerable prospect scarring, several small open pits, and some probable underground mines. Nearby support area is mostly new and quite active; it appears to be under expansion. A water supply system is under construction. Power traces lead into the area from the east. Another small mining area, 1 nm east, consists of a surface excavation and tailings from possible underground shafts. This mining area is located 3 nm SSW of Kueiyang.

18 nm west of Chen-Hsien at 25-44N 112-42E. Rounded mountain mass, just east of Kueiyang, has an area of prospect diggings and several small underground mines on its top and some small open-pit mines and exploratory scarring on its west side. Mining appears old. Support housing located in village of Kueiyang.

22 nm NNW of Chen-Hsien at 26-07N 112-54E. Mining area consists of two, possibly three, underground shaft mines served by rail spur. Support housing is at the mine sites. Dark coloration of tailings and waste from transloading suggests coal as the material being mined.

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A portion of the SE quadrant of this search area and mining activity observed and reported fall within Area 29, q.v.

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ACIC. USAF Operational Navigation Chart, Sheet H-11, scale 1:1,000,000, 2d classified ed, August 1963 (CONFIDENTIAL)

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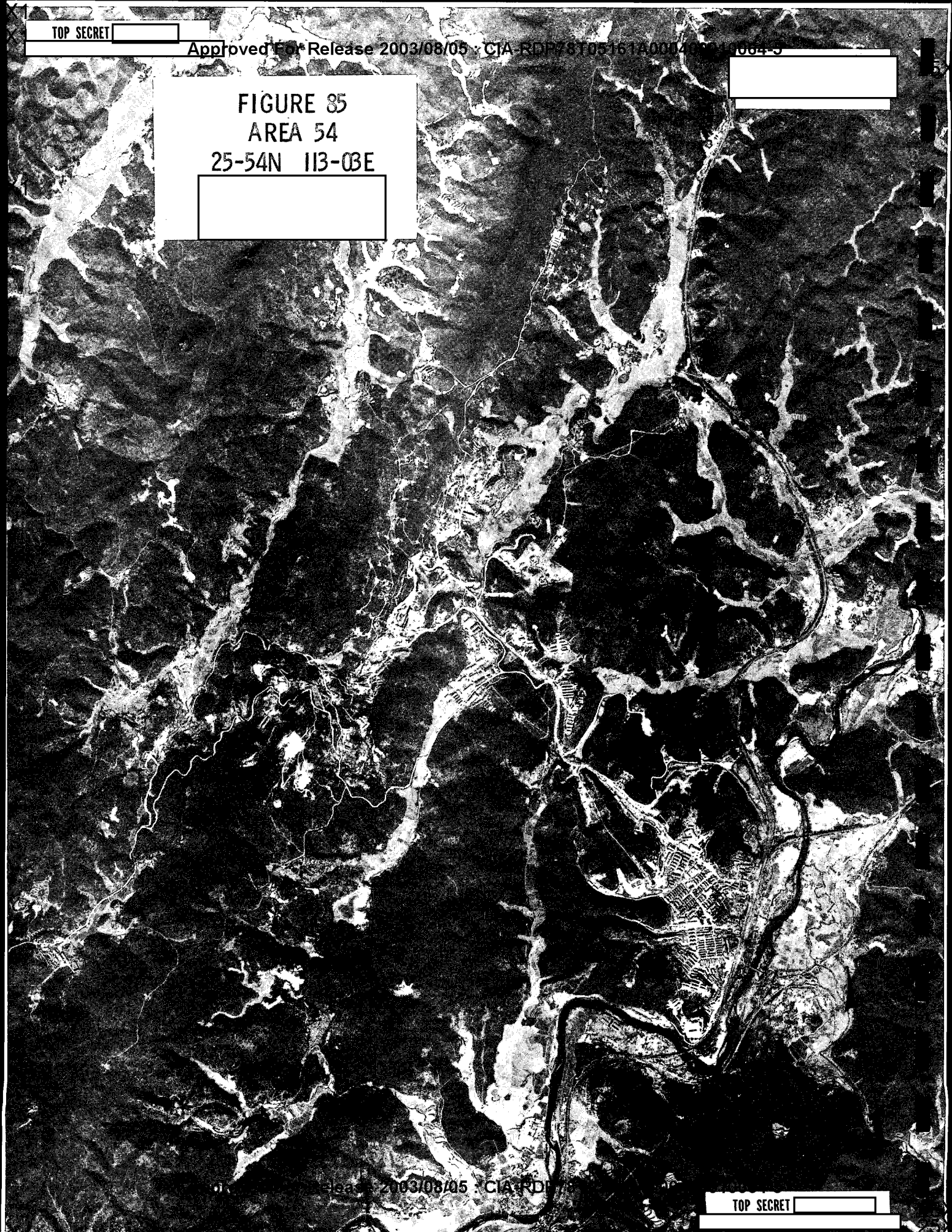
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FIGURE 85  
AREA 54  
25-54N 113-03E



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FIGURE 86  
AREA 54  
26-01N 113-16E

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FIGURE 27  
AREA 54  
25-42N 113-08E

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FIGURE 88  
AREA 54  
25-42N 112-42E

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FIGURE 89  
AREA 54  
25-42N 112-42E

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AREA 55

Hsia-Chuang, Fuchien 27-22N 119-00E WAC 498-9

14 nm west of Hsia-Chuang at 27-21N 118-44E. An area of very light prospecting is located along a small mountain ridge, but no evidence exists of active mining. No support areas are in the vicinity.

PHOTOGRAPHY



CHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

AREA 56

Hsiushui, Chiangshi 29-02N 114-34E WAC 493

0.3 nm SE of Hsiushui at 29-01N 114-34E. Two small waste piles and a small support area, just across river from Hsiushui, attest to presence of a mining area. Does not appear significant.

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ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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## CIA IMAGERY ANALYSIS DIVISION

## AREA 57

Lientang, Kiangsi 28-33N 115-56E WAC 493

19 nm SW of Lientang at 28-17N 115-43E (Figure 90). Mining area, centered on the above coordinates, extends along an east-west trend for approximately 7 nm. It consists of at least eight separate probable underground shaft sites. An extended rail spur with smaller branch spurs serves the various sites. Extensive housing and support buildings are located throughout the area, and a secured explosives storage area is immediately north. Appears relatively new. Prospect scarring is located on nearby outcrops. Active. Area is probably one of coal mining.

34 nm SW of Lientang at 28-11N 115-28E. A probable underground shaft mine, similar to the one described above, is located at the terminus of a rail spur. It contains a small support area.

Most of this search area overlaps Area 31 and a portion of it overlaps Area 7. Some of the mining activity described above falls within those two areas.

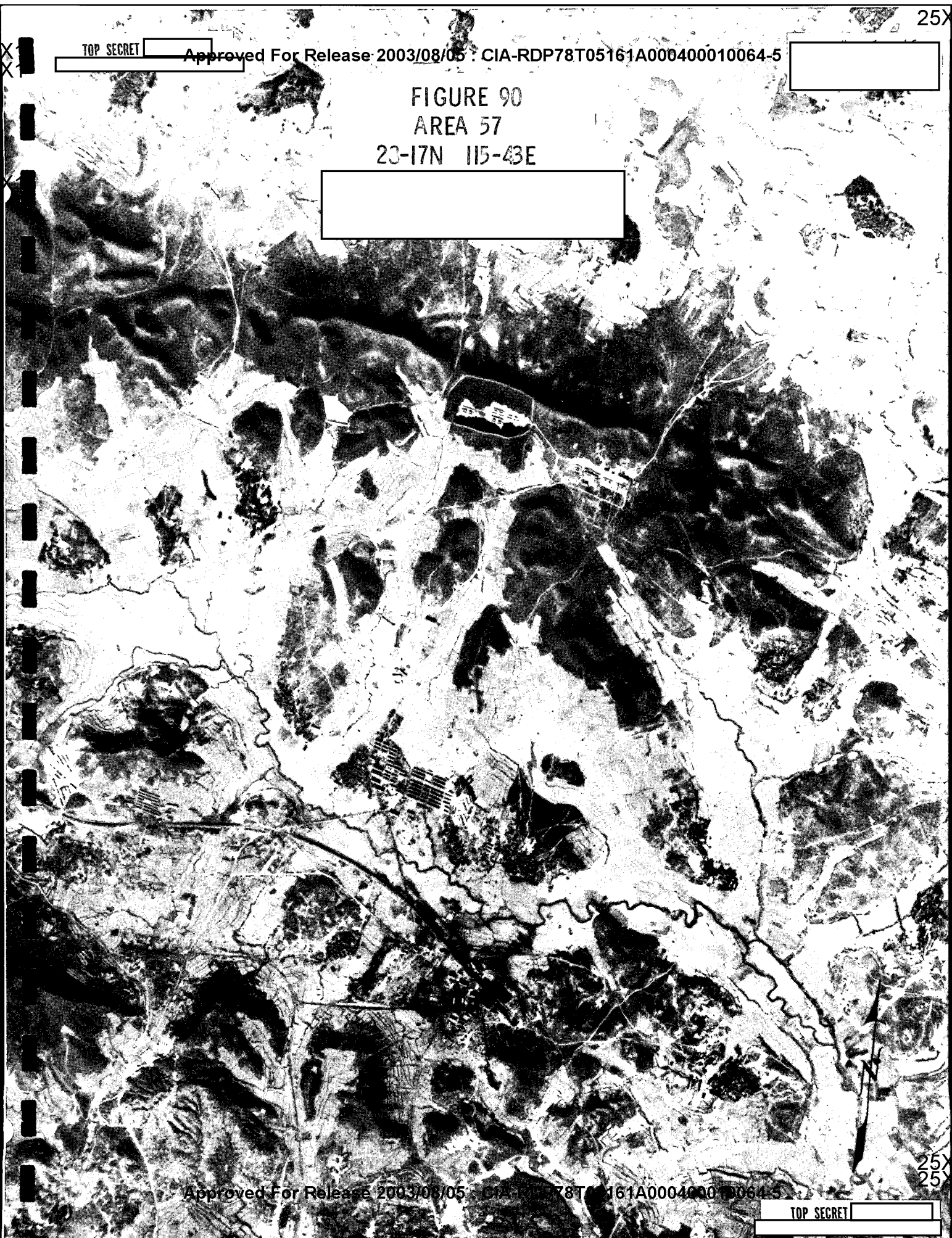
PHOTOGRAPHYCHART

ACIC. USAF Operational Navigation Chart, Sheet H-12, scale 1:1,000,000, 3d ed, October 1964 (UNCLASSIFIED)

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FIGURE 90  
AREA 57  
23-17N 115-43E



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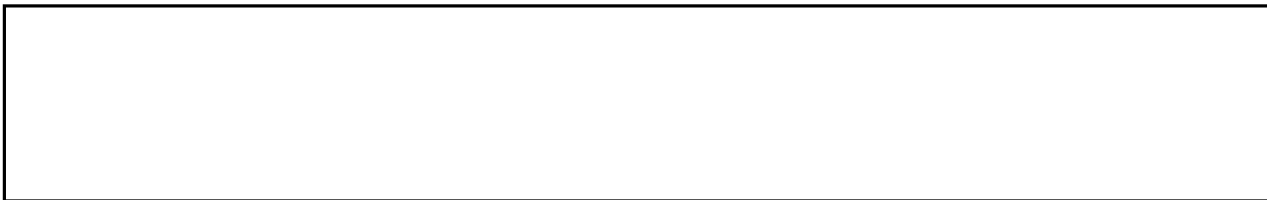
AREA 58

Mutanchiang, Heilungkiang 44-35N 129-36E WAC 283

1 nm west of Mutanchiang at 44-33N 129-32E. Mining activity consists of a long quarry-like surface excavation along the base of an eroded remnant immediately west of Mutanchiang. Another similar area of surface digging is located along a remnant about 1 nm SW. These mines are probably sources for construction material. Support housing is in the area.

2.5 nm NNE of Mutanchiang at 44-38N 129-37E. Mining activity consists of several small areas of quarry-like surface excavations connected by road. No associated support housing is evident.

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CHART

ACIC. USAF Operational Navigation Chart, Sheet F-9, scale 1:1,000,000, 2d classified ed, January 1963 (CONFIDENTIAL)

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REQUIREMENT NUMBERS

1. C-SI5-82,150
2. C-SI5-82,150 Supplement I
3. C-SI5-82,150 Supplement II
4. C-SI5-82,221

IAD PROJECT NUMBERS

1. 30089-5
2. 30791-5
3. 30029-6
4. 30184-5

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